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## **I. STATUS OF CLAIMS**

Claims 1-42, and 44-50 are currently pending; and claim 43 has been cancelled.

Claims 2, 21-40, and 47-50 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. *See* Office Action, p. 5 (9 March 2010).

Claims 2, 12, 13, 21-40, 32, 33, 43, 46, and 47 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. . *See* Office Action, p. 8 (9 March 2010).

Claims 1, 12, 14, 15, 18-21, 32, 34, 35, 38-42, 44-47, 49, and 50 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (US 2002/0161751 A1) (“Mulgund”) in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al.. (“Madden”) *See* Office Action, p. 11 (9 March 2010).

Claims 2 and 22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund in view of Madden and in further view of Chiloyan et al. (US Patent No.: 7,165,109). (“Chiloyan”) *See* Office Action, p. 20 (9 March 2010).

Claims 3-6 and 23-26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund in view of Madden and in further view of Godlewski (US Patent No.: 6,421,354) (“Godlewski”). *See* Office Action, p. 20 (9 March 2010).

Claims 7-11, 13, 27-31, 33, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund in view of Madden and in further view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al. (hereinafter “Madden (ACQP)”). *See* Office Action, p. 22 (9 March 2010).

Claims 16, 17, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund in view of Madden and in further view of Kung et al. (US 2005/0021724 A1) (“Kung”). *See* Office Action, p. 26 (9 March 2010).

Without any prejudice or disclaimer, moreover, Applicant hereby amends claims 1, 2, 12, 13, 21, 27, 29-41, and 45-48 and cancels claim 43. These changes were made to further clarify patentable subject matter set forth in the specification as originally filed. No new matter has been added.

## II. ISSUES TO BE REVIEWED

The issues in this response relate to whether the art of record establishes a *prima facie* case of the unpatentability of Applicant's claims. For reasons set forth elsewhere herein, Applicant respectfully asserts that the art of record does not establish a *prima facie* case of the unpatentability of any pending claim.<sup>1</sup> Accordingly, Applicant respectfully requests that the USPTO hold all pending claims allowable for at least the reasons described herein, and issue a Notice of Allowance on same.

## III. ARGUMENT: ART OF RECORD DOES NOT ESTABLISH *PRIMA FACIE* CASE OF UNPATENTABILITY IN VIEW OF CITED ART OF RECORD

In response to the art-based rejections of the Office Action (9 March 2010), Applicant respectfully asserts herein that, under the MPEP and legal standards for patentability as set forth below, the art of record does not establish a *prima facie* case of the unpatentability of Applicant's claims at issue. Specifically, Applicant respectfully shows below that the art of record does not recite the text of Applicant's claims at issue, and hence fails to establish a *prima facie* case of unpatentability. Accordingly, Applicant respectfully requests that the USPTO withdraw its rejections and hold all claims to be allowable over the art of record.

### A. Legal Standards for Patentability<sup>2</sup>

The MPEP states as follows: "the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant. . . . If examination at the initial stage does not produce a *prima facie* case of unpatentability, then

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<sup>1</sup> Irrespective of a desire to be cooperative, the ability of any patent practitioner to help the Examiner fulfill this burden on the record is tightly curtailed by pre- and post-issuance legal standards and by various ethical duties in tension. *See, e.g.*, 37 C.F.R. § 10.83 ("A practitioner should represent a client zealously within the bounds of the law."); 37 C.F.R. § 10.84 ("[A] practitioner shall not intentionally . . . [p]rejudice or damage a client during the course of a professional relationship, except as required under this [ethics] part."); and 37 C.F.R. § 10.76 ("A practitioner should represent a client competently."). For these and other reasons, this document notes instances in which the USPTO did not follow the prescribed rules rather than seeking to interpret claims and/or to adduce evidence on the Examiner's behalf.

<sup>2</sup> Applicant is aware that Examiner is familiar with the MPEP standards. Applicant is merely setting forth the MPEP standards to serve as a framework for Applicant's arguments following and to ensure a complete written record is established. Should Examiner disagree with Applicant's characterization of the MPEP standards, Applicant respectfully request correction.

without more the applicant is entitled to grant of the patent.” *MPEP* § 2107 (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992)); *Ex Parte Frye*, No. 2009-006-013, slip op. at 8 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner); *In Re Glaug*, 283 F.3d 1335, 62 USPQ2d 1151 (Fed. Cir. 2002) (“During patent examination the PTO bears the initial burden of presenting a *prima facie* case of unpatentability. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984). If the PTO fails to meet this burden, then the applicant is entitled to the patent.”). Accordingly, unless and until an examiner presents evidence establishing *prima facie* unpatentability, an applicant is entitled to a patent on all claims presented for examination.

“**Prima facie case**” has been explained as “Courts use ‘prima facie’ to mean **not** only **that plaintiff’s evidence would reasonably allow conclusion plaintiff seeks, but** also that **plaintiff’s evidence compels such a conclusion if the defendant produces no evidence to rebut it.**” Black’s Law Dictionary, 6th Edition, 11-90 (1990, West Publishing Co.). “*Prima Facie Evidence*” is defined as “Evidence **good and sufficient on its face**; such evidence as, in the judgment of the law, is **sufficient to establish** a given fact, or the group or **chain of facts constituting the party’s claim** or defense, and **which if not rebutted or contradicted**, will remain sufficient. **Evidence** which, **if unexplained or uncontradicted is sufficient to sustain a judgment in favor of the issue which it supports**, but which may be contradicted by other evidence.... **Evidence** which, **standing alone and unexplained**, would **maintain the proposition and warrant the conclusion to support which it is introduced**” *Black’s Law Dictionary*, 6th Edition, 1190 (1990, West Publishing Co.) (citing *State v. Haremza*, 515 P.2d 1217, 1222 (1973)); see also *In Re Piasecki*, 745 F.2d (Fed. Cir. 1984) and *Hyatt v. Dudas*, 551 F.3d 1307, 1313 (Fed. Cir. 2008).

If an applicant challenges an examiner’s allegation of *prima facie* unpatentability of any rejected claim, such as by demonstrating lack of evidence and/or reasoning sufficient to support the allegation of *prima facie* unpatentability the examiner must either respond to the challenge(s)



or allow the claim. *Ex Parte Frye*, No. 2009-006-013, slip op. at 8, 9 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner).<sup>3</sup>

For example, in making an obviousness rejection, the evidence required must come in the form of particular ~~findings~~ factual assertions supported by objective evidence: “[b]road conclusory statements standing alone are not ‘evidence’.” *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000) (citing *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999)). The Supreme Court has affirmed this requirement in its *KSR v. Teleflex* decision: “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR v. Teleflex*, 550 U.S. 398; 127 S. Ct. 1727 at 1741 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

The court in *Kotzab* held that “more than a mere scintilla of evidence is necessary” to support an Examiner’s *prima facie* case. *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000). This underscores the requirement for *some* evidence in making a *prima facie* case; rejections based on *no* evidence have repeatedly been reversed by the Federal Circuit. See *In re McNeil-PPC*, 2008-1546, slip op. 1, 10 (Fed. Cir. July 31, 2009) (anticipation rejection reversed where BPAI provided no evidence in support of its “findings” that the reference “taught” something

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<sup>3</sup> See *Ex Parte Frye*, No. 2009-006-013, slip op. at 8, 9 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner). (“The Examiner has the initial burden to set forth the basis for any rejection and the reasons why the applicant is not entitled to a patent on the claim scope that he seeks – the ... ‘prima facie case.’” *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984) (the initial burden of proof is on the USPTO “to produce the factual basis for its rejection of an application under sections 102 and 103”). (quoting *In re Warner*, 379 F.2d 1011, 1016 (CCPA 1967)). An appellant may attempt to overcome an examiner’s unpatentability e.g. obviousness rejection on appeal to the Board by submitting arguments and/or evidence to show that the examiner made an error in either (1) an underlying finding of fact upon which the final conclusion of obviousness was based, or (2) the reasoning used to reach the legal conclusion of obviousness. Similarly, the applicant may submit evidence of secondary considerations of non-obviousness. See *Kahn*, 441 F.3d at 985-86 (“On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.”) (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998), *overruled in part on other grounds*, *KSR*, 550 U.S. at 422). ... See *Oetiker*, 977 F.2d at 1445 (“In reviewing the examiner’s decision on appeal, the Board must necessarily weigh all of the evidence and argument.”) (emphasis added); see also 37 C.F.R. § 41.37(c)(1)(vii) (appeal brief must include “the contentions of appellant with respect to each ground of rejection presented for review in paragraph (c)(1)(vi) of this section, and the basis therefor, with citations of the statutes, regulations, authorities, and parts of the record relied on”). Specifically, the Board reviews the particular finding(s) contested by an appellant anew in light of all the evidence and argument on that issue. *Ex Parte Frye*, No. 2009-006-013, slip op. at 8, 9, 10 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner).”)

beyond its direct disclosures: “There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs ‘compressed less than the fiber core’ or ‘a generally cylindrical compressed, solid fibre core.’ ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions, *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000) (obviousness rejection reversed for lack of evidence where neither the examiner nor the Board cited evidence ~~there was no finding~~ supporting the Examiner’s “unstated premise” that the “one system” direct disclosures of the cited art equated to the “one sensor” term in applicant’s rejected claims: “Evans clearly never uses the term ‘system’ as a substitute for the simple temperature measuring device it calls ‘sensor.’ And, the Board made no reference to any evidence in the record that would equate ‘one system’ with ‘one sensor.’”), and *In re Robert Skvorecz*, 2008-1221, slip op. 1, 7 (Fed. Cir. September 3, 2009) (anticipation rejection reversed where Examiner’s assertion that reference contained identical recitations as the claim was unsupported by any evidence).

## 1. What a Reference “Teaches” Is a Question of Fact

What a reference “teaches” is a question of fact.<sup>4,5,6</sup> Conclusory statements that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective evidence of record. *See In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009);<sup>7</sup> *In re Lee*, 277 F.3d 1338 (Fed. Cir.

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<sup>4</sup> *See Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) (“What a reference **teaches** is a **question of fact**... Therefore, we review the Board’s **characterization** of the **disclosure** in the FPR Publication for **substantial evidence**.”) (emphasis added).

<sup>5</sup> *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing the PTO and holding when the PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”)

<sup>6</sup> Anticipation, as well as what a reference teaches, is a question of fact. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1323 (Fed. Cir. 2002).

<sup>7</sup> In *McNeil*, the Examiner had rejected claims reciting a tampon having “a generally cylindrical compressed, solid fibre core” and ribs “compressed less than the fiber core” in view of a Japanese patent application (“Sasaki”). McNeil appealed to the Board of Patent Appeals and Interferences, which “specifically found that ‘Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward.’” *See id.*, 2008-1546, slip op. 1, 3 (Fed. Cir. July 31, 2009). In light of this and its finding that of each rib of Sasaki being “compressed less than the fiber core,” the Board affirmed the rejections. Insofar that the Sasaki reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its statement that “Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed

2002);<sup>8</sup> *In re Kotzab*, 217 F.3d 1365, 1369-70 (Fed. Cir. 2000) (“Whether the Board relies on an express or an implicit showing, it must provide [evidence sufficient to support] particular [alleged] findings related thereto.” “[That is, evidence such that] a reasonable mind might accept the evidence as adequate to support the factual conclusions drawn by the Board ....” “Broad conclusory statements standing alone are not ‘evidence.’” Board reversed on no evidence basis).<sup>9</sup> Even if the PTO personnel were to seek to support their characterizations with an expert

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solid fiber core from which longitudinal ribs extend radially outward,” the Federal Circuit reversed the rejection for lack of “substantial evidentiary support,” stating as follows:

There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs “compressed less than the fiber core” or “a generally cylindrical compressed, solid fibre core.” ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions. ... Lastly, turning to the issue of spacing of the ribs, Figure 8 shows a space between the bottommost ribs, and there is arguably some space shown between other ribs. However, because it is neither clear that Sasaki discloses a core nor which portions of Sasaki's tampon the Board considered to be the ribs and which the Board considered to be the core, we cannot say that substantial evidence supports the Board's determination that Sasaki discloses ribs separated from each other “at the proximal end by an amount greater than” than at “the distal end.”

*See id.*, 2008-1546, slip op. 1, 10-11 (Fed. Cir. July 31, 2009).

<sup>8</sup> In *Lee*, the USPTO argued that, to the “common sense of a person of ordinary skill in the art,” it was obvious that one could combine a prior patent for an on-screen television menu with an on-screen picture-quality adjustment for a video game played on a television illustrated in the game’s handbook. The Federal Circuit ruled that obviousness must be based on “objective evidence of record.” Finding no specific published suggestion in the record, the Federal Circuit ruled the invention patentable. *See id.*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (describing the BPAI’s obligation to develop an evidentiary basis for its factual findings to allow for meaningful judicial review under the substantial evidence standard).

<sup>9</sup> In *Kotzab*, the Federal Circuit reversed the BPAI as follows:

The Examiner cites Evans for teaching that “one *system* constructed and operated according to the invention may be used to control a number of valves.” Evans application, p. 19, ll. 6-8 (emphasis added). In view of this disclosure only, the Examiner concluded that Evans teaches the use of one *sensor* to control a number of valves. This conclusion must necessarily rest on the unstated premise by the Examiner that “one system” is equal to “one sensor.”

But the Board's decision, adopting the Examiner's premise, lacks the necessary substantial evidence to support a rejection of Kotzab’s claims. Specifically, there is not substantial evidence to show that “one system” is the same thing as “one sensor.” The words “sensor” and “probe” are used throughout Evans to refer to the device that measures the mold temperature. ... Evans clearly never uses the term “system” as a substitute for the simple temperature measuring device it calls “sensor.” And, the Board made no reference to any evidence in the record that would equate “one system” with “one sensor.”

As mentioned previously, more than a mere scintilla of evidence is necessary to support the Board's implicit conclusion that “one system” is equal to “one sensor.” Based on the entirety of Evans’ disclosure, we cannot say that there is such relevant evidence as a reasonable mind might accept as adequate to support the conclusion that “one system” means “one sensor.”

*See id.*, 217 F.3d 1365, 1370-71 (Fed. Cir. 2000) (underline added).

witness affidavit, the law is that conclusory statements by an expert that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective documentary evidence.<sup>10</sup> Thus, when a party to a matter asserts that a reference “teaches” something beyond its bare recitations/direct disclosure, and that factual assertion is challenged by an opposite party, the law requires that the asserting party provide objective evidentiary support to “close the gap” between what the reference recites and what the asserting party *alleges* the reference teaches; in the absence of such evidence, there should be no finding of fact in favor of the asserted teaching.<sup>11,12,13,14 , 15</sup> Ex

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<sup>10</sup> See *Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1473 (Fed. Cir. 1997) (“The district court’s holding misapprehends the rigors of anticipation. For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art... **Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there. An expert’s conclusory testimony, unsupported by the documentary evidence, cannot supplant the requirement of anticipatory disclosure in the prior art reference itself.**”) (emphasis added); see also *Genzyme Corp. v. Atrium Med. Corp.*, 315 F. Supp. 2d 552, 563 (D. Del. 2004) (“For a patent to be anticipated, every element of a patent claim must appear in a single reference. **Other references and opinion may be used to reveal what the reference would have meant to those skilled in the art at the time of the invention.... For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. Presumed knowledge of one skilled in the art does not allow an expert to read into the reference elements that are not there.**”) (emphasis added)

<sup>11</sup> See *Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) . In *Rapoport*, the Federal Circuit affirmed the Board’s holding that a publication did not anticipate a claim, reasoning as follows (emphasis added):

Having construed the disputed term in the interference count and affirmed the Board’s interpretation, we can properly address the merits of Rapoport’s anticipation argument. The Board found that the disclosure of the FPR Publication was limited to treatment of anxiety in patients suffering from sleep apnea with buspirone, and did not address treatment of the underlying sleep apnea disorder. What a reference **teaches** is a question of fact.... There is no disclosure in the FPR Publication of tests in which buspirone is administered to patients suffering from sleep apnea with the intent to cure the underlying condition.... The Board also correctly found that the FPR Publication does not show administering buspirone in any specific amounts to patients suffering from sleep apnea.... We note that there is no mention in the FRP Publication of administering buspirone to a patient at bedtime.... Therefore, for all the reasons stated above, we find that the Board’s conclusion that the FPR Publication does not disclose administration of buspirone to patients suffering from sleep apnea to treat sleep apnea is supported by substantial evidence.

<sup>12</sup> See *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing PTO and holding, when PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”).

<sup>13</sup> See *In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009).

<sup>14</sup> See *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000).

<sup>15</sup> *KSR v. Teleflex*, 550 U.S. 398; 127 S. Ct. 1727 at 1741 (citing *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006)) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”)

*Parte Frye*, No. 2009-006-013, slip op. at 14-15 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner).

## **2. MPEP Standards for Determining Anticipation**

An examiner bears the initial burden of factually supporting any *prima facie* conclusion of anticipation. *Ex Parte Skinner*, 2 U.S.P.Q.2d 1788, 1788-89 (B.P.A.I. 1986); *In Re King*, 801 F.2d 1324, 231 U.S.P.Q. (BNA) 136 (Fed. Cir. 1986); MPEP § 2107 (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992) (“[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability....”). Failure of an examiner to meet this burden entitles an applicant to a patent. *Id.* (“[i]f examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent”).

*Ex Parte Frye* and the MPEP indicate that in order for an examiner to establish a *prima facie* case of anticipation of an applicant’s claim, the examiner must first interpret the claim, consistent with the specification.<sup>1617</sup> and thereafter show that the cited prior art discloses the same elements, in the same arrangement, as the elements of the claim which the examiner asserts is anticipated.

### **a) Interpreting a Claim at Issue**

With respect to interpreting a claim at issue, *Ex Parte Frye* and the MPEP direct that, during examination — as opposed to subsequent to issue — the pending claims must be “given their broadest reasonable interpretation consistent with the specification.” MPEP § 2111. The Federal Circuit’s *en banc* decision in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) expressly recognized that the USPTO employs the “broadest reasonable interpretation consistent with the specification” standard:

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<sup>16</sup> *Ex Parte Frye*, No. 2009-006-013, slip op. at 14 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner).

<sup>17</sup> With respect to interpreting a claim at issue, the MPEP directs that, during examination — as opposed to subsequent to issue — such claim be interpreted as broadly as the claim terms would reasonably allow, in light of the specification, when read by one skilled in the art with which the claimed invention is most closely connected. MPEP § 2111.

The [PTO] determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Indeed, the rules of the PTO require that application claims must “conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.” 37 CFR 1.75(d)(1).

*Phillips* at 1316. See also *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000) and MPEP § 2111.

In addition, it is the PTO’s responsibility to interpret the claims during prosecution. See *In re Suitco Surface*, 2009-1418, Slip. Op. at 6-7 (Fed. Cir. April 14, 2010) (“‘During reexamination, as with original examination, the PTO must give claims their broadest reasonable construction consistent with the specification.’ *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007) (citing *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004)). This Court thus reviews the PTO’s interpretation of disputed claim language to determine whether it is ‘reasonable.’ *In re Morris*, 127 F.3d 1048, 1055 (Fed. Cir. 1997).”) See also *In re Morris*, 127 F.3d 1048, 1054-55 (Fed. Cir. 1997) (the “PTO applies to verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant’s specification.”). See also MPEP § 2141, II, A.: “The scope of the claimed invention must be clearly determined by giving the claims the ‘broadest reasonable interpretation consistent with the specification.’ See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005) and MPEP § 2111.”<sup>18</sup>

In *In Re Suitco Surface*, the Federal Circuit made it clear that the USPTO is required to give all claims their broadest reasonable construction, and the Federal Circuit “has instructed that any such construction be ‘consistent with the specification, . . . and that claim language should be

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<sup>18</sup> “During examination, ‘claims . . . are to be given their broadest reasonable interpretation consistent with the specification, and . . . claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art.’ *In re Bond*, 910 F.2d 831, 833 (Fed. Cir. 1990); accord *Bass*, 314 F.3d at 577 (‘[T]he PTO must apply the broadest reasonable meaning to the claim language, taking into account any definitions presented in the specification.’); *In re Cortright*, 165 F.3d 1353, 1358 (Fed. Cir. 1999) (‘Although the PTO must give claims their broadest reasonable interpretation, this interpretation must be consistent with the one that those skilled in the art would reach.’); *Hyatt*, 211 F.3d at 1372.”); *In re Skvorecz*, 580 F.3d 1262, 1267 (Fed. Cir. 2009).

read in light of the specification as it would be interpreted by one of ordinary skill in the art.’ *In re Bond*, 910 F.2d 831, 833 (Fed. Cir. 1990) (quoting *In re Sneed*, 710 F.2d 1544, 1548 (Fed. Cir. 1983))” *In Re Suitco Surface*, 2009-1418, Slip. Op. 8, April 14, 2010 (Fed. Cir.) (emphasis in original). The court further emphasized the importance of construing claims with reference to the specification, stating that the “PTO’s construction here, though certainly broad, is unreasonably broad. The broadest-construction rubric coupled with the term "comprising" does not give the PTO an unfettered license to interpret claims to embrace anything remotely related to the claimed invention. Rather, claims should always be read in light of the specification and teachings in the underlying patent. See *Schriber-Schroth Co. v. Cleveland Trust Co.*, 311 U.S. 211, 217 (1940) (“The claims of a patent are always to be read or interpreted in light of its specifications.”). *Suitco Surface* at p. 8 (emphasis added). This is a direct validation of *In re Morris*’ rule that a claim interpretation that does not take the specification into account is unreasonable, and that this is error. In *Suitco Surface*, the court held that the USPTO’s construction was unreasonably broad and remanded with instructions to conduct a new invalidity analysis using the appropriate construction.

In *Ex Parte Frye*, the Board looked to how a claim term was used in Frye’s Specification to conclude that the Examiner had made an “unreasonably broad interpretation” of the claim term. *Ex Parte Frye*, No. 2009-006-013, slip op. at 14 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner).<sup>19</sup>

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<sup>19</sup> *Ex Parte Frye*, No. 2009-006-013, slip op. at 14-15 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner) (“The Examiner’s finding that Snabb discloses a meeting point located “substantially halfway” (Ans. 5) as claimed rests on an unreasonably broad interpretation of “substantially halfway”. Depending on its usage, the word “substantially” can denote either language of approximation or language of magnitude. *Deering Precision Instruments, L.L. C. v. Vector Distribution Sys., Inc.*, 347 F.3d 1314, 1323 (Fed. Cir. 2003) (recognizing the “dual ordinary meaning of th[e] term [“substantially”] as connoting a term of approximation or a term of magnitude”). Here, when referring to the “substantially halfway” limitation, the Specification uses the word “approximately” as a substitute for the word “substantially” (Fact 4). Thus, consistent with its usage in the Specification, the ordinary and customary meaning of “substantially” includes “reasonably close to: nearly, almost, about”, connoting a term of approximation (Fact 4). The ordinary meaning of “substantially halfway” is thus reasonably close to or nearly at the midpoint between the forwardmost point of the upper or outsole and the rearwardmost point of the upper or outsole (Facts 4, 5). As such, we disagree with the Examiner’s finding that the point at which the section of Snabb’s insole having an increasing thickness meets the section of Snabb’s insole having a constant thickness is “substantially halfway” with respect to the upper surface or outsole of the shoe. Rather, we find that this point, marked with the number 29 in figure 2 of Snabb, is too far forward of a halfway point with respect to the upper surface or outsole of Snabb’s shoe to be the “substantially halfway” point as claimed.”).

*In re Morris* shows that claim interpretation without consideration of the application disclosure is per se legal error:

As a preliminary matter the parties disagree about the proper claim construction methodology to be employed by the PTO. Appellants argue that this court's *in banc* decisions in *Markman v. Westview Instruments*, ..., and in *In re Donaldson*,... require the PTO in the course of prosecution to interpret claims in the same manner as courts are required to during infringement proceedings. The Solicitor responds by arguing that our past decisions permit the PTO to give claim language its “broadest reasonable interpretation” during prosecution, ....

The Solicitor is correct, and we reject appellants’ invitation to construe either of the cases cited by appellants so as to overrule, *sub silentio*, decades old case law. Some cases state the standard as “the broadest reasonable interpretation,”..., others include the qualifier “consistent with the specification” or similar language,.... **Since it would be unreasonable for the PTO to ignore any interpretive guidance afforded by the applicant's written description, either phrasing connotes the same notion: as an initial matter, the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification.**

*In Re Morris* at 1053-54 (emphasis added).

As the emphasized text shows, the CAFC has clearly stated that **“it would be unreasonable for the PTO to ignore any interpretive guidance afforded by the applicant's written description.”** Consequently, if ever the BPAI effectively ignores the interpretive guidance of applicant’s specification, the BPAI’s “interpretation” is *per se* unreasonable under CAFC precedent and hence constitutes reversible legal error.

That is, in *Morris* the Federal Circuit upheld the Board’s claim interpretation because the Board could point to CCPA holdings that repeatedly and specifically interpreted the claim term under contention:

“[Board’s claim interpretation was reasonable in that it was based on legitimate objective evidence of CCPA holdings where that] court had on several prior occasions interpreted the term "integral" to cover more than a unitary construction. ... Absent an express definition in their specification, the fact that appellants can point to definitions or usages that conform to their interpretation does not make the PTO's definition unreasonable **when the PTO can point to other sources that support its interpretation.**



*In Re Morris* 127 F.3d 1056 (Fed. Cir. 1997). Moreover, in an instructive unpublished 1993 decision, this court held that interpretations that ignore the specification are “improperly overbroad”:

“The Commissioner argues that for examination purposes it is improper to read limitations from the specification into the claims..... Therefore, according to the Commissioner, the break-away means should be interpreted in the abstract, without reference to the specification.... The Commissioner's reading of the claim limitation is improperly overbroad because it expands the meaning of the claim beyond that which was intended by the inventor as set forth in the specification ... When interpreting a claim term which is ambiguous [e.g., having more than one possible meaning or interpretation], such as ‘preselected level of force,’ we must look to the specification for the meaning ascribed to that term by the inventor” *In re Weiss*, 989 F.2d 1202 (Fed. Cir. 1993) (unpublished, but cited in MPEP § 2111.01 (II)).

Federal Circuit precedent indicates that it is generally good practice for patentees to signal to the public that the examples in the specification are not exhaustive.<sup>20</sup> Also, new terms are useful as part of patent specifications since they can precisely describe utilization and scope of the claimed invention per 35 U.S.C. § 112, second paragraph and as the subject matter permits. As stated in the MPEP:

Courts have recognized that it is not only permissible, but often desirable, to use new terms that are frequently more precise in describing and defining the new invention. *In re Fisher*, 427 F.2d 833, 166 USPQ 18 (CCPA 1970). Although it is difficult to compare the claimed invention with the prior art when new terms are used that do not appear in the prior art, this does not make the new terms indefinite.

New terms are often used when a new technology is in its infancy or is rapidly evolving. The requirements for clarity and precision must be balanced with the limitations of the language and the science. If the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the statute (35 U.S.C. 112, second paragraph) demands no more. *Shatterproof Glass Corp. v. Libbey Owens Ford Co.*, 758 F.2d 613, 225 USPQ 634 (Fed. Cir. 1985) (interpretation of “freely supporting” in method

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<sup>20</sup> *Johnson Worldwide Assocs. v. Zebco Corp.*, 175 F.3d 985, 991 (Fed. Cir. 1999) ((Varied use of a disputed term in the written description demonstrates the breadth of the term rather than providing a limited definition. .... Contrary to Zebco's arguments, *Laitram Corp. v. Morehouse Industries, Inc.*, 143 F.3d 1456, 46 U.S.P.Q.2D (BNA) 1609 (Fed. Cir. 1998), is inapposite. The court there held that a narrow interpretation of a disputed term was compelled because of statements in the written description that made clear that “the asserted claims will bear only one interpretation: that the ‘driving surface’ limitation is limited to flat driving surfaces,” and that the “‘driving surface’ limitation . . . requires flat driving surfaces.” *Id.* at 1463, 46 U.S.P.Q.2D (BNA) at 1614-15 (emphasis added). Here, of course, there is no such unambiguous language in the written description; nothing suggests that “heading” is required to be the heading of the trolling motor.”)

claims directed to treatment of a glass sheet); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (Fed. Cir. 1986) (interpretation of a limitation specifying a numerical value for antibody affinity where the method of calculation was known in the art at the time of filing to be imprecise). This does not mean that the examiner must accept the best effort of applicant. If the proposed language is not considered as precise as the subject matter permits, the examiner should provide reasons to support the conclusion of indefiniteness and is encouraged to suggest alternatives that are free from objection.

MPEP § 2173.05(a) II. The Requirement For Clarity And Precision Must Be Balanced With The Limitations Of The Language.

**b) Anticipation is Based on Single Prior Art Reference that Meets All Disclosure Requirements**

With respect to showing that the cited prior art discloses the same elements, in the same arrangement, as the elements of the claim which the examiner asserts is anticipated, the MPEP states that “[a] claim is anticipated *only if each and every element as set forth in the claim is found*, either expressly or inherently described, in a single prior art reference. . . . The identical invention must be shown in as complete detail as is contained in the . . . claim. . . . The elements must be arranged as required by the claim . . . .” *MPEP* § 2131 (emphasis added). *Ex Parte Frye*, No. 2009-006-013, slip op. at 11 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner). For example, In *McNeil*, the Examiner had rejected claims reciting a tampon having “a generally cylindrical compressed, solid fibre core” and ribs “compressed less than the fiber core” in view of a Japanese patent application (“Sasaki”). *McNeil* appealed to the Board of Patent Appeals and Interferences, which “specifically found that ‘Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward.’” *See id.*, 2008-1546, slip op. 1, 3 (Fed. Cir. July 31, 2009). In light of this and its finding that of each rib of Sasaki being “compressed less than the fiber core,” the Board affirmed the rejections. Insofar as the Sasaki reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its statement that “Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical

compressed solid fiber core from which longitudinal ribs extend radially outward,” the Federal Circuit reversed the rejection for lack of “substantial evidentiary support,” stating as follows:

There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs “compressed less than the fiber core” or “a generally cylindrical compressed, solid fibre core.” ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions. ... Lastly, turning to the issue of spacing of the ribs, Figure 8 shows a space between the bottommost ribs, and there is arguably some space shown between other ribs. However, because it is neither clear that Sasaki discloses a core nor which portions of Sasaki's tampon the Board considered to be the ribs and which the Board considered to be the core, we cannot say that substantial evidence supports the Board's determination that Sasaki discloses ribs separated from each other “at the proximal end by an amount greater than” than at “the distal end.”

*McNeil*, 2008-1546, slip op. 1, 10-11 (Fed. Cir. July 31, 2009) (emphasis added).

In *In re Skvorecz*, an anticipation rejection rested on an interpretation of features of a wire stand. The claim at issue required that each wire leg of the stand have a laterally displacing offset. The BPAI admitted that in the cited reference, “Buff,” the offset in the rim was not shown to be ‘for laterally displacing each wire leg relative to said upper rim’ as required by claim 1, but nonetheless maintained the rejection. The Federal Circuit reversed for lack of evidence:

On rehearing the Board stated that Buff’s wire 48 is a “transverse member” and not a wire leg, and therefore that it need not have a displacing offset. Mr. Skvorecz states, and we agree, that Buff’s wire 48 is a leg of the Buff structure. The Board’s contrary statement is unsupported by any evidence.

*Id.* at p. 8 (emphasis added).

Consequently, under the guidelines of the MPEP set forth above, if there is *any* substantial difference between the prior art cited by an examiner and an applicant’s claim which the examiner asserts is rendered anticipated by the prior art, the prior art does NOT establish a *prima facie* case of anticipation and, barring other rejections, the applicant is entitled to a patent on such claim.

### 3. MPEP Standards for Determining Obviousness

"[T]he examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness."<sup>21</sup> *MPEP* § 2142. The MPEP indicates that in order for an examiner to establish a *prima facie* case that an invention, as defined by a claim at issue, is obvious, the examiner must (1) interpret the claim at issue; (2) define one or more prior art reference components relevant to the claim at issue; (3) ascertain the differences between the one or more prior art reference components and the elements of the claim at issue; and (4) adduce objective evidence which establishes, under a preponderance of the evidence standard, a teaching to modify the teachings of the prior art reference components such that the prior art reference components can be used to construct a device substantially equivalent to the claim at issue. This last step generally encompasses two sub-steps: (1) adducement of objective evidence teaching how to modify the prior art components to achieve the individual elements of the claim at issue; and (2) adducement of objective evidence teaching how to combine the modified individual components such that the claim at issue, as a whole, is achieved. *MPEP* § 2141; *MPEP* § 2143. Each of these foregoing elements is further defined within the MPEP. *Id.*

This requirement has been explained recently by the Supreme Court in *KSR v. Teleflex*, 550 U.S. 398; 127 S. Ct. 1727 (2007) which noted that such a rejection requires “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” More recently, *Ex Parte Frye* has cited *In re Kahn* for the proposition that “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Ex Parte Frye*, No. 2009-006-013, slip op. at 12 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner). As stated by the Court, obviousness can be established where “there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, ***this analysis should be made explicit.***” (emphasis added). *See In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements;

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<sup>21</sup> An invention, as embodied in the claims, is rendered obvious if an Examiner concludes that although the claimed invention is not identically disclosed or described in a reference, the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *MPEP* § 2141 (citing 35 U.S.C. § 103).

instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.’).” *KSR v. Teleflex*, 550 U.S. 398; 127 S. Ct. 1727 at 1741.

As further described by the Court “[A] *patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.* Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *KSR v. Teleflex*, 550 U.S. 398; 127 S. Ct. 1727 at 1741.

#### **a) Interpreting a Claim at Issue**

With respect to interpreting a claim at issue, *Suitco Surfaces, Ex Parte Frye* and the MPEP direct that, during examination — as opposed to subsequent to issue — the pending claims must be “given their broadest reasonable interpretation consistent with the specification.” MPEP § 2111. The Federal Circuit’s *en banc* decision in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) expressly recognized that the USPTO employs the “broadest reasonable interpretation consistent with the specification” standard:

The [PTO] determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Indeed, the rules of the PTO require that application claims must “conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.” 37 CFR 1.75(d)(1).

*Phillips* at 1316. See also *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000) and MPEP § 2111.

In addition, it is the PTO’s responsibility to interpret the claims during prosecution. See *In re Morris*, 127 F.3d 1048, 1054-55 (Fed. Cir. 1997) (the “PTO applies to verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they

would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant's specification.”). See also Examination Guidelines For Determining Obviousness Under 35 U.S.C. § 103: MPEP § 2141, II, A.: “The scope of the claimed invention must be clearly determined by giving the claims the ‘broadest reasonable interpretation consistent with the specification.’ See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005) and MPEP § 2111.”<sup>22</sup>

In *In Re Suitco Surface*, the Federal Circuit made it clear that the USPTO is required to give all claims their broadest reasonable construction, and the Federal Circuit “has instructed that any such construction be ‘consistent with the specification, . . . and that claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art.’ *In re Bond*, 910 F.2d 831, 833 (Fed. Cir. 1990) (quoting *In re Sneed*, 710 F.2d 1544, 1548 (Fed. Cir. 1983))” *In Re Suitco Surface*, 2009-1418, Slip. Op. 8, April 14, 2010 (Fed. Cir.) (emphasis in original). The court further emphasized the importance of construing claims with reference to the specification, stating that the “PTO’s construction here, though certainly broad, is unreasonably broad. The broadest-construction rubric coupled with the term “comprising” does not give the PTO an unfettered license to interpret claims to embrace anything remotely related to the claimed invention. Rather, claims should always be read in light of the specification and teachings in the underlying patent. See *Schriber-Schroth Co. v. Cleveland Trust Co.*, 311 U.S. 211, 217 (1940) (“The claims of a patent are always to be read or interpreted in light of its specifications.”). *Suitco Surface* at p. 8 (emphasis added). This is a direct validation of *In re Morris*’ rule that a claim interpretation that does not take the specification into account is unreasonable, and that this is error. In *Suitco Surface*, the court held that the USPTO’s construction was unreasonably broad and remanded with instructions to conduct a new invalidity analysis using the appropriate construction.

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<sup>22</sup> “During examination, ‘claims . . . are to be given their broadest reasonable interpretation consistent with the specification, and . . . claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art.’ *In re Bond*, 910 F.2d 831, 833 (Fed. Cir. 1990); accord *Bass*, 314 F.3d at 577 (‘[T]he PTO must apply the broadest reasonable meaning to the claim language, taking into account any definitions presented in the specification.’); *In re Cortright*, 165 F.3d 1353, 1358 (Fed. Cir. 1999) (‘Although the PTO must give claims their broadest reasonable interpretation, this interpretation must be consistent with the one that those skilled in the art would reach.’); *Hyatt*, 211 F.3d at 1372.”); *In re Skvorecz*, 580 F.3d 1262, 1267 (Fed. Cir. 2009).

In *Ex Parte Frye*, the Board looked to how a claim term was used in Frye's Specification to conclude that the Examiner had made an "unreasonably broad interpretation" of the claim term. *Ex Parte Frye*, No. 2009-006-013, slip op. at 14 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner).<sup>23</sup> Where there is no evidence that the examiner has consulted the specification, for example by giving a created term a lay definition uninformed by the specification, the claim construction should be per se unreasonable. It should also be per se unreasonable where no claim construction is expressly proffered by the examiner for such a created term. An unstated, implied or legally deficient claim construction for created terms risks producing shifting, uncertain, or ungrounded constructions.

*In re Morris* shows that claim interpretation without consideration of the application disclosure is per se legal error:

As a preliminary matter the parties disagree about the proper claim construction methodology to be employed by the PTO. Appellants argue that this court's *in banc* decisions in *Markman v. Westview Instruments*, ..., and in *In re Donaldson*,... require the PTO in the course of prosecution to interpret claims in the same manner as courts are required to during infringement proceedings. The Solicitor responds by arguing that our past decisions permit the PTO to give claim language its "broadest reasonable interpretation" during prosecution, ....

The Solicitor is correct, and we reject appellants' invitation to construe either of the cases cited by appellants so as to overrule, *sub silentio*, decades old case law. Some cases state the standard as "the broadest reasonable interpretation,"..., others include the qualifier "consistent with the specification" or similar language,.... Since it would be

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<sup>23</sup> *Ex Parte Frye*, No. 2009-006-013, slip op. at 14-15 (B.P.A.I. February 26, 2010) (signed by Director Kappos and Deputy Director Barner) ("The Examiner's finding that Snabb discloses a meeting point located "substantially halfway" (Ans. 5) as claimed rests on an unreasonably broad interpretation of "substantially halfway". Depending on its usage, the word "substantially" can denote either language of approximation or language of magnitude. *Deering Precision Instruments, L.L. C. v. Vector Distribution Sys., Inc.*, 347 F.3d 1314, 1323 (Fed. Cir. 2003) (recognizing the "dual ordinary meaning of th[e] term ["substantially"] as connoting a term of approximation or a term of magnitude"). Here, when referring to the "substantially halfway" limitation, the Specification uses the word "approximately" as a substitute for the word "substantially" (Fact 4). Thus, consistent with its usage in the Specification, the ordinary and customary meaning of "substantially" includes "reasonably close to: nearly, almost, about", connoting a term of approximation (Fact 4). The ordinary meaning of "substantially halfway" is thus reasonably close to or nearly at the midpoint between the forwardmost point of the upper or outsole and the rearwardmost point of the upper or outsole (Facts 4, 5). As such, we disagree with the Examiner's finding that the point at which the section of Snabb's insole having an increasing thickness meets the section of Snabb's insole having a constant thickness is "substantially halfway" with respect to the upper surface or outsole of the shoe. Rather, we find that this point, marked with the number 29 in figure 2 of Snabb, is too far forward of a halfway point with respect to the upper surface or outsole of Snabb's shoe to be the "substantially halfway" point as claimed.").

**unreasonable for the PTO to ignore any interpretive guidance afforded by the applicant's written description, either phrasing connotes the same notion: as an initial matter, the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification.**

*In Re Morris* at 1053-54 (emphasis added).

As the emphasized text shows, the CAFC has clearly stated that “**it would be unreasonable for the PTO to ignore any interpretive guidance afforded by the applicant's written description.**” Consequently, if ever the BPAI effectively ignores the interpretive guidance of applicant’s specification, the BPAI’s “interpretation” is *per se* unreasonable under CAFC precedent and hence constitutes reversible legal error.

. That is, in *Morris* the Federal Circuit upheld the Board’s claim interpretation because the Board could point to CCPA holdings that repeatedly and specifically interpreted the claim term under contention:

“[Board’s claim interpretation was reasonable in that it was based on legitimate objective evidence of CCPA holdings where that] court had on several prior occasions interpreted the term "integral" to cover more than a unitary construction. ... Absent an express definition in their specification, the fact that appellants can point to definitions or usages that conform to their interpretation does not make the PTO's definition unreasonable **when the PTO can point to other sources that support its interpretation.**

*In Re Morris* 127 F.3d 1056 (Fed. Cir. 1997).

Moreover, in an instructive unpublished 1993 decision, this court held that interpretations that ignore the specification are “improperly overbroad”: “The **Commissioner argues** that for examination purposes **it is improper to read limitations from the specification into the claims..... Therefore, according to the Commissioner, the break-away means should be interpreted in the abstract, without reference to the specification....** The **Commissioner's reading** of the claim limitation is **improperly overbroad** because it expands the meaning of the claim beyond that which was intended by the inventor as set forth in the specification ... **When interpreting a claim term which is ambiguous [e.g., having more than one possible meaning or interpretation], such as ‘preselected level of force,’ we must look to the specification for the meaning ascribed to that term by the inventor”** *In re Weiss*, 989 F.2d 1202 (Fed. Cir. 1993) (unpublished, but cited in MPEP § 2111.01 (II)).



Federal Circuit precedent indicates that it is generally good practice for patentees to signal to the public that the examples in the specification are not exhaustive.<sup>24</sup> Also, new terms are useful as part of patent specifications since they can precisely describe utilization and scope of the claimed invention per 35 U.S.C. § 112, second paragraph and as the subject matter permits. As stated in the MPEP:

Courts have recognized that it is not only permissible, but often desirable, to use new terms that are frequently more precise in describing and defining the new invention. *In re Fisher*, 427 F.2d 833, 166 USPQ 18 (CCPA 1970). Although it is difficult to compare the claimed invention with the prior art when new terms are used that do not appear in the prior art, this does not make the new terms indefinite.

New terms are often used when a new technology is in its infancy or is rapidly evolving. The requirements for clarity and precision must be balanced with the limitations of the language and the science. If the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the statute (35 U.S.C. 112, second paragraph) demands no more. *Shatterproof Glass Corp. v. Libbey Owens Ford Co.*, 758 F.2d 613, 225 USPQ 634 (Fed. Cir. 1985) (interpretation of "freely supporting" in method claims directed to treatment of a glass sheet); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (Fed. Cir. 1986) (interpretation of a limitation specifying a numerical value for antibody affinity where the method of calculation was known in the art at the time of filing to be imprecise). This does not mean that the examiner must accept the best effort of applicant. If the proposed language is not considered as precise as the subject matter permits, the examiner should provide reasons to support the conclusion of indefiniteness and is encouraged to suggest alternatives that are free from objection.

MPEP § 2173.05(a) II. The Requirement For Clarity And Precision Must Be Balanced With The Limitations Of The Language.

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<sup>24</sup> *Johnson Worldwide Assocs. v. Zebco Corp.*, 175 F.3d 985, 991 (Fed. Cir. 1999) ((Varied use of a disputed term in the written description demonstrates the breadth of the term rather than providing a limited definition. .... Contrary to Zebco's arguments, *Laitram Corp. v. Morehouse Industries, Inc.*, 143 F.3d 1456, 46 U.S.P.Q.2D (BNA) 1609 (Fed. Cir. 1998), is inapposite. The court there held that a narrow interpretation of a disputed term was compelled because of statements in the written description that made clear that "the asserted claims will bear only one interpretation: that the 'driving surface' limitation is limited to flat driving surfaces," and that the "'driving surface' limitation . . . requires flat driving surfaces." Id. at 1463, 46 U.S.P.Q.2D (BNA) at 1614-15 (emphasis added). Here, of course, there is no such unambiguous language in the written description; nothing suggests that "heading" is required to be the heading of the trolling motor."))

Furthermore, Applicants and their attorneys have legal duties during prosecution that forestall them from carrying out the USPTO's duty to interpret the claims. With respect to the claims, the CAFC has described an applicant/attorney's duties during prosecution as follows:

**When one of ordinary skill in the relevant art would foresee coverage of an invention, a patent drafter has an obligation to claim those foreseeable limits [in view of post-issuance claim interpretation law].** This rule enhances the notice function of [issued] claims....

A foreseeability bar thus places a premium on claim drafting and enhances the notice function of claims. **To restate, if one of ordinary skill in the relevant art would reasonably anticipate ways to evade the literal claim language, the patent applicant has an obligation to cast its claims to provide notice of that coverage [in view of post-issuance claim interpretation law]. In other words, the patentee has an obligation to draft claims that capture all reasonably foreseeable ways to practice the invention [in view of post-issuance claim interpretation law].**<sup>25</sup>

As shown above, the CAFC has declared that both Applicants and their attorneys have a legal duty to draft claims that capture all reasonably foreseeable ways to practice the invention in view of post-issuance claim interpretation law. Yet, interpretation of the drafted claims during prosecution of patent applications before the USPTO are not put forth by the CAFC as part of the legal duties of applicants and their attorneys.

**b) Definition of One or More Prior Art Reference Components Relevant to the Claim at Issue**

Once the claim at issue has been properly interpreted, the next step is the definition of one or more prior art reference components (*e.g.*, electrical, mechanical, or other components set forth in a prior art reference) relevant to the properly interpreted claim at issue. With respect to the definition of one or more prior art reference components relevant to the claim at issue, the MPEP defines three proper sources of such prior art reference components, with the further requirement that each such source must have been extant at the time of invention to be considered relevant. These three sources are as follows: patents as defined by 35 U.S.C. § 102, printed publications as defined by 35 U.S.C. § 102, and information (*e.g.*, scientific principles)

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<sup>25</sup> *Johnson & Johnston v. R.E. Services, Co.*, 285 F.3d 1046, 1057-58 (Fed. Cir. 2002) (Rader and Mayer, concurring).

deemed to be "well known in the art"<sup>26</sup> as defined under 35 U.S.C. § 102. *MPEP* § 2141; *MPEP* § 2144.

**c) Ascertainment of Differences between Prior Art Reference Components and Claim at Issue; Teaching to Modify and/or Combine Prior Art Reference Components to Remedy Those Differences in Order to Achieve Recitations of Claim at Issue**

With one or more prior art components so defined and drawn from the proper prior art sources, the differences between the one or more prior art reference components and the elements of the claim at issue are to be ascertained. Thereafter, in order to establish a case of *prima facie* obviousness, an examiner must set forth a rationale, supported by objective evidence<sup>27</sup> sufficient to demonstrate under a preponderance of the evidence standard, that in the prior art extant at the time of invention there was a teaching to modify and/or combine the one or more prior art reference components to construct a device practicably equivalent to the claim at issue.

In *Kotzab*, insofar as the cited Evans reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its contention that "one system" is equal to "one sensor," the Federal Circuit reversed the rejection for lack of "necessary substantial evidence to support a rejection," stating as follows:

The Examiner cites Evans for teaching that "one system constructed and operated according to the invention may be used to control a number of valves." Evans application, p. 19, ll. 6-8 (emphasis added). In view of this disclosure only, the Examiner concluded that Evans teaches the use of one sensor to control a number of valves. This conclusion must necessarily rest on the unstated premise by the Examiner that "one system" is equal to "one sensor."

But the Board's decision, adopting the Examiner's premise, lacks the necessary substantial evidence to support a rejection of Kotzab's claims. Specifically, there is not

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<sup>26</sup> The fact that information deemed to be "well known in the art" can serve as a proper source of prior art reference components seems to open the door to subjectivity, but such is not the case. As a remedy to this potential problem, *MPEP* § 2144.03 states that if an Examiner asserts that his position is derived from and/or is supported by a teaching or suggestion that is alleged to have been "well known in the art," and that if an applicant traverses such an assertion (that something was "well known within the art"), the Examiner must cite a reference in support of his or her position. The same *MPEP* section also states that when a rejection is based on facts within the personal knowledge of an Examiner, the data should be stated as specifically as possible, and the facts must be supported, when called for by the applicant, by an affidavit from the Examiner. Such an affidavit is subject to contradiction or explanation by the affidavits of the applicant and other persons. *Id.* Thus, all sources of prior art reference components must be objectively verifiable.

<sup>27</sup> The proper sources of the objective evidence supporting the rationale are the defined proper sources of prior art reference components, discussed above, with the addition of factually similar legal precedent. *MPEP* § 2144.

substantial evidence to show that “one system” is the same thing as “one sensor.” The words “sensor” and “probe” are used throughout Evans to refer to the device that measures the mold temperature. ... Evans clearly never uses the term “system” as a substitute for the simple temperature measuring device it calls “sensor.” And, the Board made no reference to any evidence in the record that would equate “one system” with “one sensor.”

As mentioned previously, more than a mere scintilla of evidence is necessary to support the Board's implicit conclusion that “one system” is equal to “one sensor.” Based on the entirety of Evans’ disclosure, we cannot say that there is such relevant evidence as a reasonable mind might accept as adequate to support the conclusion that “one system” means “one sensor.”

*See id.*, 217 F.3d 1365, 1370-71 (Fed. Cir. 2000) (emphasis added).

The preferable evidence relied upon is an express teaching to modify/combine within the properly defined objectively verifiable sources of prior art. In the absence of such express teaching, an examiner may attempt to establish a rationale to support a finding of such teaching reasoned from, or based upon, express teachings taken from the defined proper sources of such evidence (*i.e.*, properly defined objectively verifiable sources of prior art). *MPEP* § 2144; *In re Dembiczak*, 50 U.S.P.Q.2d 1614 (Fed. Cir. 1999).

The MPEP recognizes the pitfalls associated with the tendency to subconsciously use impermissible “hindsight” when an examiner attempts to establish such a rationale. The MPEP has set forth at least two rules to ensure against the likelihood of such impermissible use of hindsight. The first rule is that:

under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical “person of ordinary skill in the art” when the invention was unknown and just before it was made. In view of all factual information,<sup>28</sup> the examiner must then make a determination whether the claimed invention “as a whole” would have been obvious at that time to that person. Knowledge of an Applicant’s disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the “differences,” conduct the search, and evaluate the “subject matter as a whole” of the invention. The tendency to resort to “hindsight” based upon an Applicant’s disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

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<sup>28</sup> “Factual information” is information actually existing or occurring, as distinguished from mere supposition or opinion. *Black’s Law Dictionary* 532 (5th ed. 1979).

*MPEP* § 2142 (emphasis added). Thus, if the only objective evidence of such teaching to modify and/or combine prior art reference components is an applicant's disclosure, no evidence of such teaching exists.<sup>29</sup>

The second rule is that if an examiner attempts to rely on some advantage or expected beneficial result that would have been produced by a modification and/or combination of the prior art reference components as evidence to support a rationale to establish such teachings to modify and/or combine prior art reference components, the *MPEP* requires that such advantage or expected beneficial result be objectively verifiable teachings present in the acceptable sources of prior art (or drawn from a convincing line of reasoning based on objectively verifiable established scientific principles or teachings). *MPEP* § 2144. Thus, as a guide to avoid the use of impermissible hindsight, these rules from the *MPEP* make clear that absent some objective evidence, sufficient to persuade under a preponderance of the evidence standard, no teaching of such modification and/or combination exists.<sup>30</sup>

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<sup>29</sup> An applicant may argue that an Examiner's conclusion of obviousness is based on improper hindsight reasoning. However, "[a]ny judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." *MPEP* § 2145(X)(A) (emphasis added).

<sup>30</sup> *In Re Sang Su Lee* 277 F.3d 1338 (Fed. Cir. 2002) ("When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness.") *See, e.g., McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d 1001, 1008 (Fed. Cir. 2001) ("the central question is whether there is reason to combine [the] references," a question of fact drawing on the *Graham* factors). "The factual inquiry whether to combine references must be thorough and searching." *Id.* It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with. *See, e.g., Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d 1456, 1459 (Fed. Cir. 2000) ("a showing of a suggestion, teaching, or motivation to combine the prior art references is an 'essential component of an obviousness holding'") (quoting *C.R. Bard, Inc., v. M3 Systems, Inc.*, 157 F.3d 1340, 1352, 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998)); *In re Dembiczak*, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."); *In re Dance*, 160 F.3d 1339, 1343, 48 U.S.P.Q.2d 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); *In re Fine*, 837 F.2d 1071, 1075, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988) ("teachings of references can be combined only if there is some suggestion or incentive to do so.") (emphasis in original) (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984)). The need for specificity pervades this authority. *See, e.g., In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000) ("particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed"); *In re Rouffet*, 149 F.3d 1350, 1359, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998) ("even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the

**B. Technical Material Cited by the USPTO Does Not Show/Suggest Recitations of Independent Claim 1 and Dependent Claims 2-20, and 46-48 as Presented Herein; Notice of Allowance of Same Respectfully Requested**

**1. Independent Claim 1**

Independent Claim 1 recites as follows:

1. A method comprising:

- [a] determining at least one of a sensing function or a control function at a first mote of a second mote, the first and second mote administered by a first network administrator owned or controlled by a first business entity;
- [b] creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining; and
- [c] exposing at least a part of the created one or more mote-addressed content indexes to an aggregator of (i) a first-set content index from a first set of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.<sup>31</sup>

As shown following, (1) the USPTO yet to fulfill its duty to provide the broadest reasonable interpretation consistent with the specification of Independent Claim 1 by an unreasonable mapping of the claim onto the USPTO -cited material, which fails to recite several express recitations of these claims; (2) the USPTO is asserting one or more characterizations that each cited reference “teaches” at least some of the text of Independent Claim 1, but has not yet provided any objectively verifiable evidence supporting these assertions; and (3) the USPTO has not yet adduced objective evidence of how to modify/combine the cited art to match the recitations of Independent Claim 1.

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art would have been motivated to select the references and to combine them to render the claimed invention obvious.”)).

<sup>31</sup> The lettering of the clauses herein is merely for sake of clarity of argument and should not be taken to imply any particular ordering of the clauses.

a) **The USPTO Has Not Met Its Duty to Provide a Broadest Reasonable Interpretation of Independent Claim 1 Consistent with the Specification through Attempts to Map Independent Claim 1 onto USPTO-Cited Technical Material that Fails to Recite Several Express Terms of Independent Claim 1 and Therefore the USPTO Has Not Met Its Burden to Establish a *Prima Facie* Case of Unpatentability for Independent Claim 1**

Concerning this, the USPTO has recently stated as follows:

“As to claim 1, Mulgund teaches:  
determining at least one of a sensing function or a control function of a second mote [discovering and maintaining the distributed sensor network topology (par. [0007]), wherein at least one of a sensing function or a control function is interpreted to be at least one of the data elements outlined in paragraphs 0021 - 0024]; and

creating one or more mote-addressed content indexes of the second mote in response to said determining [building a database model by updating relational database logical design tables at each step of the discovering step (par. 0007)]. Mulgund also shows a sensor network modeling agent (summary of the invention) for performing the recited functions.

Mulgund does not show that said determining and creating is being performed at a first mote.

Madden shows:

determining at least one of a sensing function or a control function at a first mote [parent mote] of a second mote [child mote] [asking sensors to choose the group they belong to forward tagged partial state record with the group id] (section 4.2 Grouping); and

creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having said determining and creating being performed at a first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).”

Office Action, pp. 11-12 (9 March 2010).<sup>32</sup>

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<sup>32</sup> Applicant respectfully asserts that the USPTO has apparently not examined the recitations of Applicant’s claims, but appears to have not addressed the express language of both Applicant’s claims and the cited technical material. Accordingly, Applicant respectfully maintains that the USPTO has not established a *prima facie* case of the unpatentability of any pending claim for at least this reason. Notwithstanding the foregoing, Applicant demonstrates herein that even if the USPTO had followed the MPEP examination guidelines, no *prima facie* case of unpatentability would be extant.

As set forth above, Independent Claim 1 recites as follows: “[a] determining at least one of a sensing function or a control function at a first mote of a second mote, **the first and second mote administered by a first network administrator owned or controlled by a first business entity**; [b] creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining; and [c] **exposing at least a part of the created one or more mote-addressed content indexes to an aggregator of (i) a first-set content index from a first set of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.**”<sup>33</sup>

It appears to Applicant that the USPTO has mapped “[a] determining at least one of a sensing function or a control function at a first mote of a second mote” onto a configuration by which *“discovering and maintaining the distributed sensor network topology by applying at every access point a quasi-recursive algorithm, which causes the network modeling agent to visit a first sensor node and mark the first node visited.”* It also appears to Applicant that the USPTO has mapped “[b] creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining” onto *“The network modeling agent builds the database model by updating relational database logical design tables at each step of the discovering step.”* Applicant notes that the USPTO has not explained how it reaches such mappings under the framework of the broadest reasonable interpretation consistent with the specification as is the USPTO’s burden (e.g., such as by examples drawn from Applicant’s claims or detailed description),<sup>34</sup> and furthermore, Applicant points out that this mapping does not address at least the “exposing at least a part of the created one or more mote-addressed content indexes to an aggregator of (i) a first-set content index from a first set of motes administered by the first network administrator owned or controlled by the first business entity

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<sup>33</sup> The lettering of the clauses herein is merely for sake of clarity of argument and should not be taken to imply any particular ordering of the clauses.

<sup>34</sup> Irrespective of a desire to be cooperative, the ability of any patent practitioner to help the Examiner fulfill this burden on the record is tightly curtailed by pre- and post-issuance legal standards and by various ethical duties in tension. *See, e.g.*, 37 C.F.R. § 10.83 (“A practitioner should represent a client zealously within the bounds of the law.”); 37 C.F.R. § 10.84 (“[A] practitioner shall not intentionally ... [p]rejudice or damage a client during the course of a professional relationship, except as required under this [ethics] part.”); and 37 C.F.R. § 10.76 (“A practitioner should represent a client competently.”). For these and other reasons, this document notes instances in which the USPTO did not follow the prescribed rules rather than seeking to interpret claims and/or to adduce evidence on the USPTO’s behalf.



and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.”

In view of the foregoing, Applicant points out that although Independent Claim 1 has been quoted in the present rejection, several claim terms have not been addressed in its analysis. Because the USPTO-cited material fails to recite at least the foregoing bolded recitations of Independent Claim 1,<sup>35</sup> under the MPEP guidelines as set forth above, such material does not establish a *prima facie* case of the unpatentability of Independent Claim 1. For these reasons, Applicant respectfully asks the USPTO to hold Independent Claim 1 allowable and to issue a Notice of Allowability of same.

**b) The USPTO is Characterizing/Asserting U.S. Pat. Application No. US 2002/0161751 (“Mulgund”) and/or “TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks” (“Madden”) to “Teach” the Text of Independent Claim 1, But Does Not Support Its Characterization/Assertion, Therefore the USPTO Has Not Met Its Burden to Establish a *Prima Facie* Case of Unpatentability for Independent Claim 1**

The USPTO has stated as follows:

As to claim 1, Mulgund teaches:

determining at least one of a sensing function or a control function of a second mote [discovering and maintaining the distributed sensor network topology (par. 0007)], wherein at least one of a sensing function or a control function is interpreted to be at least one of the data elements outlined in paragraphs 0021 - 0024]; and

creating one or more mote-addressed content indexes of the second mote in response to said determining [building a database model by updating relational database logical design tables at each step of the discovering step (par. 0007)]. Mulgund also shows a sensor network modeling agent (summary of the invention) for performing the recited functions.

Mulgund does not show that said determining and creating is being performed at a first mote.

Madden shows:

determining at least one of a sensing function or a control function at a first mote [parent mote] of a second mote [child mote] [asking sensors to choose the group they belong to forward tagged partial state record with the group id] (section 4.2 Grouping); and

creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping).

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<sup>35</sup> Although Independent Claim 1 has been quoted in the present rejection, several claim terms have not been addressed in its analysis, as shown below.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having said determining and creating being performed at a first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).

Office Action, pp. 2-3 (9 March 2010) (emphasis modified). Applicant respectfully disagrees and traverses the rejection.

**(1) The USPTO Has Put Forth No Evidence  
Supporting Its Characterization/Assertion That  
Mulgund “Teaches” Recitations of Independent  
Claim 1**

Applicant respectfully points out that Applicant has reviewed those portions of the Mulgund reference identified by the USPTO, and so far as Applicant can discern, the Mulgund reference does not recite “determining at least one of a sensing function or a control function at a first mote of a second mote” or “creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining” as recited in Applicant's Independent Claim 1.<sup>36</sup> Rather, the textual portions of Mulgund cited by the USPTO actually recite as follows:

[0007] In another aspect, the present invention is a method of *database modeling that makes it possible to create, store, and update a virtual model of a network of sensors within a relational database structure*. The network modeling agent dynamically updates various sensor node data and link data that collectively define an instantaneous "state" of the sensor network into the database logical design. The network modeling agent thereby facilitates access, visualization, and the use of a stream of information generated by the network of distributed sensors. The sensor nodes to be interrogated by the network modeling agent are assumed to be uniquely addressable and in communication, using networking protocols, with one another through links and with a database server through one or more access points. A method according to the present invention comprises the steps of discovering and maintaining the distributed sensor network topology by applying at every access point a quasi-recursive algorithm, which causes the network modeling agent to visit a first sensor node and mark the first node visited, push the marked first node onto a stack, and while the stack is non-empty, query the node at the top of the stack for a list of current links to the node at the top,

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<sup>36</sup> Nor does Mulgund recite as the USPTO alleges, for that matter; Applicant again points out that, in derogation of the MPEP guidelines, the USPTO has not addressed the language of Applicant's Independent Claim 1.

compare the list of current links to a list of historical links to the node at the top of the stack and update the historical link and historical node information, and if there are no unmarked nodes reachable from a current link then pop the stack, otherwise visit the next reachable unmarked node, mark the next node and push it onto the stack. The network modeling agent builds the database model by updating relational database logical design tables at each step of the discovering step. The agent maintains the database model by periodically reapplying the interrogating algorithm, thereby updating the database model to account for sensor node and link additions and deletions. The periodicity of updates is preferably such that a near real-time topology of the sensor network is maintained.

[0021] an identity (unique identifying information such as a numeric address) of each of the sensing nodes 2 in the network 4, as well as any metadata about each node;

[0022] a connectivity of each of the sensing nodes 2; i.e., a structural representation of the network topology that could be used to reconstruct a diagram such as FIG. 1;

[0023] an up-to-date information content at each of the sensing nodes 2; i.e., a real-time snapshot and time-history of the data of interest generated at each node location by an attached suite of sensors 16, as depicted in FIG. 2; and

[0024] a history of the network 4 from the moment the model was first constructed, which would allow a reconstruction of the network's state at any time in the past.

Mulgund at paragraphs 7, 21-24 (emphasis added).

The USPTO is characterizing Mulgund to “teach” at least some of the text of Independent Claim 1, but does not support its characterization with objectively verifiable evidence. The USPTO has therefore not met its burden to establish a *prima facie* case of unpatentability for Independent Claim 1. What a reference “teaches” is a question of fact.<sup>37,38,39</sup> Conclusory statements that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective

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<sup>37</sup> See *Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) (“What a reference **teaches** is a question of fact... Therefore, we review the Board's **characterization** of the **disclosure** in the FPR Publication for **substantial evidence**.”) (emphasis added).

<sup>38</sup> *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing the PTO and holding when the PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”)

<sup>39</sup> Anticipation, as well as what a reference teaches, is a question of fact. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1323 (Fed. Cir. 2002).

evidence. *See In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009);<sup>40</sup> *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002);<sup>41</sup> *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000) (“Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. ... Broad conclusory statements standing alone are not “evidence.”).<sup>42</sup> Even if the PTO

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<sup>40</sup> In *McNeil*, the Examiner had rejected claims reciting a tampon having “a generally cylindrical compressed, solid fibre core” and ribs “compressed less than the fiber core” in view of a Japanese patent application (“Sasaki”). McNeil appealed to the Board of Patent Appeals and Interferences, which “specifically found that ‘Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward.’” *See id.*, 2008-1546, slip op. 1, 3 (Fed. Cir. July 31, 2009). In light of this and its finding that of each rib of Sasaki being “compressed less than the fiber core,” the Board affirmed the rejections. Insofar that the Sasaki reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its statement that “Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward,” the Federal Circuit reversed the rejection for lack of “substantial evidentiary support,” stating as follows:

There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs “compressed less than the fiber core” or “a generally cylindrical compressed, solid fibre core.” ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions. ... Lastly, turning to the issue of spacing of the ribs, Figure 8 shows a space between the bottommost ribs, and there is arguably some space shown between other ribs. However, because it is neither clear that Sasaki discloses a core nor which portions of Sasaki's tampon the Board considered to be the ribs and which the Board considered to be the core, we cannot say that substantial evidence supports the Board's determination that Sasaki discloses ribs separated from each other “at the proximal end by an amount greater than” than at “the distal end.”

*See id.*, 2008-1546, slip op. 1, 10-11 (Fed. Cir. July 31, 2009).

<sup>41</sup> In *Lee*, the USPTO argued that, to the “common sense of a person of ordinary skill in the art,” it was obvious that one could combine a prior patent for an on-screen television menu with an on-screen picture-quality adjustment for a video game played on a television illustrated in the game’s handbook. The Federal Circuit ruled that obviousness must be based on “objective evidence of record.” Finding no specific published suggestion in the record, the Federal Circuit ruled the invention patentable. *See id.*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (describing the BPAI’s obligation to develop an evidentiary basis for its factual findings to allow for meaningful judicial review under the substantial evidence standard).

<sup>42</sup> In *Kotzab*, the Federal Circuit reversed the BPAI as follows:

The Examiner cites Evans for teaching that “one *system* constructed and operated according to the invention may be used to control a number of valves.” Evans application, p. 19, ll. 6-8 (emphasis added). In view of this disclosure only, the Examiner concluded that Evans teaches the use of one *sensor* to control a number of valves. This conclusion must necessarily rest on the unstated premise by the Examiner that “one system” is equal to “one sensor.”

But the Board’s decision, adopting the Examiner’s premise, lacks the necessary substantial evidence to support a rejection of Kotzab’s claims. Specifically, there is not substantial evidence to show that “one system” is the same thing as “one sensor.” The words “sensor” and “probe” are used throughout Evans to refer to the device that measures the mold temperature. ... Evans clearly never uses the term “system” as a substitute for the simple temperature measuring device it calls “sensor.” And, the Board made no reference to any evidence in the record that would equate “one system” with “one sensor.”

personnel were to seek to support their characterizations with an expert witness affidavit, the law is that conclusory statements by an expert that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective documentary evidence.<sup>43</sup> Thus, when a party to a matter asserts that a reference “teaches” something beyond its bare recitations/direct disclosure, and that factual assertion is challenged by an opposite party, the law requires that the asserting party provide objective evidentiary support to “close the gap” between what the reference recites and the what the asserting party *alleges* the reference teaches; in the absence of such evidence, there should be no finding of fact in favor of the asserted teaching.<sup>44,45,46,47</sup> For each instance below in which the

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As mentioned previously, more than a mere scintilla of evidence is necessary to support the Board's implicit conclusion that “one system” is equal to “one sensor.” Based on the entirety of Evans’ disclosure, we cannot say that there is such relevant evidence as a reasonable mind might accept as adequate to support the conclusion that “one system” means “one sensor.”

*See id.*, 217 F.3d 1365, 1370-71 (Fed. Cir. 2000) (underline added).

<sup>43</sup> *See Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1473 (Fed. Cir. 1997) (“The district court's holding misapprehends the rigors of anticipation. For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art... **Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there. An expert's conclusory testimony, unsupported by the documentary evidence, cannot supplant the requirement of anticipatory disclosure in the prior art reference itself.**”) (emphasis added); *see also Genzyme Corp. v. Atrium Med. Corp.*, 315 F. Supp. 2d 552, 563 (D. Del. 2004) (“For a patent to be anticipated, every element of a patent claim must appear in a single reference. **Other references and opinion may be used to reveal what the reference would have meant to those skilled in the art at the time of the invention.... For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. Presumed knowledge of one skilled in the art does not allow an expert to read into the reference elements that are not there.**”) (emphasis added)

<sup>44</sup> *See Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) . In *Rapoport*, the Federal Circuit affirmed the Board’s holding that a publication did not anticipate a claim, reasoning as follows (emphasis added):

Having construed the disputed term in the interference count and affirmed the Board's interpretation, we can properly address the merits of Rapoport's anticipation argument. The Board found that the disclosure of the FPR Publication was limited to treatment of anxiety in patients suffering from sleep apnea with buspirone, and did not address treatment of the underlying sleep apnea disorder. What a reference **teaches** is a question of fact.... There is no disclosure in the FPR Publication of tests in which buspirone is administered to patients suffering from sleep apnea with the intent to cure the underlying condition.... The Board also correctly found that the FPR Publication does not show administering buspirone in any specific amounts to patients suffering from sleep apnea.... We note that there is no mention in the FRP Publication of administering buspirone to a patient at bedtime.... Therefore, for all the reasons stated above, we find that the Board's conclusion that the FPR Publication does not disclose administration of buspirone to patients suffering from sleep apnea to treat sleep apnea is supported by substantial evidence.

<sup>45</sup> *See In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing PTO and holding, when PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”).

USPTO has made an unsupported characterization, Applicant accordingly requests that the USPTO either (1) withdraw the corresponding claim rejection or (2) provide an affidavit setting forth objectively verifiable evidence sufficient to “close the gap” between the characterization and what the reference actually recites.

As can be seen from the foregoing, for example, the USPTO-identified portions of Mulgund do not recite the text of at least Clause [c] of Independent Claim 1: “exposing at least a part of the created one or more mote-addressed content indexes to an aggregator of (i) a first-set content index from a first set of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.” Instead, Mulgund indicates “a method of database modeling that makes it possible to create, store, and update a virtual model of a network of sensors within a relational database structure. The network modeling agent dynamically updates various sensor node data and link data that collectively define an instantaneous “state” of the sensor network into the database logical design. The network modeling agent thereby facilitates access, visualization, and the use of a stream of information generated by the network of distributed sensors.”

To Applicant, it appears that the USPTO has tried to close a significant gap between these actual recitations of the Mulgund reference and the structure of “[a] determining at least one of a sensing function or a control function at a first mote of a second mote” and “[b] creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining” (of Applicant’s Claim 1) without providing any evidence, by merely making this unsupported assertion.

Applicant has shown by direct quotations that amended Independent Claim 1 and the Mulgund reference are very different on their faces. *See supra* at p. 43 (quotation of Claim 1); and at p. 47 *et seq.* (quotation of Mulgund). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the USPTO-cited art is very different from Claim 1, and Applicant has noted that the USPTO has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such

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<sup>46</sup> *See In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009).

<sup>47</sup> *See In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000).

*prima facie* differences, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 1 either under the MPEP or under controlling legal standards. *See supra* at pp. 20–43.

Accordingly, insofar as that Mulgund does not recite the text of at least Clauses [a], [b] and [c] of Applicant’s Independent Claim 1, and insofar as that the USPTO has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Mulgund could be modified/combined to teach at least Clauses [a], [b] and [c] of Independent Claim 1, Applicant respectfully points out that under the MPEP guidelines as set forth above, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 1 for at least these reasons. Thus, Applicant respectfully asks the USPTO to hold Independent Claim 1 allowable and to issue a Notice of Allowability of same.

With respect to the USPTO assertions regarding the teachings of Mulgund, Applicant demonstrated above that the express recitations of Mulgund are not as the USPTO alleges, and that the USPTO has provided no evidence to support the USPTO assertions as to the factual conclusion as to what Mulgund “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, the USPTO has presented no evidence that Mulgund teaches as asserted by the USPTO. In addition, Applicant respectfully points out that even if the USPTO’s assertions regarding the teachings of Mulgund were supported, such would be of no moment in that the USPTO has yet to connect the alleged teaching of Mulgund to the actual express language of Applicant’s Independent Claim 1. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that the USPTO hold Independent Claim 1 allowable and issue a Notice of Allowability of same.

**(2) The USPTO Has Put Forth No Evidence Supporting Its Characterization/Assertion That Madden “Teaches” Recitations of Independent Claim 1**

As noted above, the USPTO has stated as follows:

“As to claim 1, Mulgund teaches:  
determining at least one of a sensing function or a control function of a second

mote [discovering and maintaining the distributed sensor network topology (par. [0007]), wherein at least one of a sensing function or a control function is interpreted to be at least one of the data elements outlined in paragraphs 0021 - 0024]; and

creating one or more mote-addressed content indexes of the second mote in response to said determining [building a database model by updating relational database logical design tables at each step of the discovering step (par. 0007)]. Mulgund also shows a sensor network modeling agent (summary of the invention) for performing the recited functions.

Mulgund does not show that said determining and creating is being performed at a first mote.

Madden shows:

determining at least one of a sensing function or a control function at a first mote [parent mote] of a second mote [child mote] [asking sensors to choose the group they belong to forward tagged partial state record with the group id] (section 4.2 Grouping); and

creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having said determining and creating being performed at a first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).”

Office Action, pp. 11-12 (9 March 2010).

Applicant has pointed out above that the USPTO has not engaged in the framework of the broadest reasonable interpretation consistent with the specification regarding Clause [c], and accordingly has not addressed at least the “exposing at least a part of the created one or more mote-addressed content indexes to an aggregator of (i) a first-set content index from a first set of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.” recitations of Clause [c]. Accordingly, until the USPTO has supported its statement under the framework of the broadest reasonable interpretation consistent with the specification Applicant here returns to the express language of the claim and thus respectfully points out that Applicant has reviewed those portions of the Madden reference identified by the USPTO, and so far as Applicant can discern, the Madden reference does not recite “the first and second mote administered by a first network administrator owned or controlled by a first business entity” and “exposing at least a part of the created one or more mote-addressed content indexes to an



aggregator of (i) a first-set content index from a first set of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity” as recited in Applicant's Independent Claim 1.

Rather, the textual portions of Madden cited by the USPTO actually recite as follows:

#### 4.2 Grouping

Grouping in TAG is functionally equivalent to the GROUP BY clause in SQL: each sensor reading is placed into exactly one group, and groups are partitioned according to an expression over one or more attributes. The basic grouping technique is to push the expression down with the query, ask nodes to choose the group they belong to, and then, as answers flow back, update aggregate values in the appropriate groups.

Partial state records are aggregated just as in the approach described above, except that those records are now tagged with a group id. When a node is a leaf, it applies the grouping expression to compute a group id. It then tags its partial state record with the group and forwards it on to its parent. When a node receives an aggregate from a child, it checks the group id. If the child is in the same group as the node, it combines the two values using the combining function. If it is in a different group, it stores the value of the child's group along with its own value for forwarding in the next epoch. If another child message arrives with a value in either group, the node updates the appropriate aggregate. During the next epoch, the node sends the value of all the groups about which it collected information during the previous epoch, combining information about multiple groups into a single message as long as message size permits.

Figure 2 shows an example of computing a query grouped by temperature that selects average light readings. Recall that queries may contain a HAVING clause, which constrains the set of groups in the final query result. This predicate can sometimes be passed into the network along with the grouping expression. The predicate is only sent if it can potentially be used to reduce the number of messages that must be sent: for example, if the predicate is of the form  $\text{MAX}(\text{attr}) > x$ , then information about groups with  $\text{MAX}(\text{attr}) < x$  need not be transmitted up the tree, and so the predicate is sent down into the network.

When a node detects that a group does not satisfy a HAVING clause, it can notify other nodes in the network of this information to suppress transmission and storage of values from that group. Note that HAVING clauses can be pushed down only for monotonic aggregates; nonmonotonic aggregates are not amenable to this technique.

However, not all HAVING predicates on monotonic aggregates can be pushed down; for example,  $\text{MAX}(\text{attr}) > x$  cannot be applied in the network because a node cannot know that, just because its local value of *attr* is less than, the *x*, MAX over the entire group is less than. Grouping introduces an additional problem: the number of groups can exceed available storage on any one (nonleaf) device. Our proposed

solution is to evict one or more groups from local storage. Once an eviction victim is selected, it is forwarded to the node's parent, which may choose to hold on to the group or continue to forward it up the tree. Notice that a single node may evict several groups in a single epoch (or the same group multiple times, if a bad victim is selected). This is because, once group storage is full, if only one group is evicted at a time, a new eviction decision must be made every time a value representing an unknown or previously evicted group arrives.

Because groups can be evicted, the base station at the top of the network may be called upon to combine partial groups to form an accurate aggregate value. Evicting partially computed groups is known as partial preaggregation, as described in [15].

Thus, we have shown how to partition sensor readings into a number of groups and properly compute aggregates over those groups, even when the amount of group information exceeds available storage in any one device. We will briefly mention experiments with grouping and group eviction policies in Section 5.2. First, we summarize some of the additional benefits of TAG.

Madden at section 4.2 (emphasis added).

Additionally, the USPTO is characterizing Madden to “teach” at least some of the text of Independent Claim 1, but does not support its characterization with objectively verifiable evidence, therefore the USPTO has not met its burden to establish a *prima facie* case of unpatentability for Independent Claim 1. What a reference “teaches” is a question of fact.<sup>48,49,50</sup> Conclusory statements that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective evidence. *See In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009);<sup>51</sup> *In re Lee*, 277

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<sup>48</sup> *See Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) (“What a reference **teaches** is a **question of fact**... Therefore, we review the Board's **characterization** of the **disclosure** in the FPR Publication for **substantial evidence**.”) (emphasis added).

<sup>49</sup> *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing the PTO and holding when the PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”)

<sup>50</sup> Anticipation, as well as what a reference teaches, is a question of fact. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1323 (Fed. Cir. 2002).

<sup>51</sup> In *McNeil*, the Examiner had rejected claims reciting a tampon having “a generally cylindrical compressed, solid fibre core” and ribs “compressed less than the fiber core” in view of a Japanese patent application (“Sasaki”). McNeil appealed to the Board of Patent Appeals and Interferences, which “specifically found that ‘Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward.’” *See id.*, 2008-1546, slip op. 1, 3 (Fed. Cir. July 31, 2009). In light of this and its finding that of each rib of Sasaki being “compressed less than the fiber core,” the Board affirmed the rejections. Insofar that the Sasaki reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its statement that “Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed

F.3d 1338 (Fed. Cir. 2002);<sup>52</sup> *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000) (“Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. ... Broad conclusory statements standing alone are not “evidence.”).<sup>53</sup> Even if the PTO personnel were to seek to support their characterizations with an expert witness affidavit, the law is that conclusory statements by an expert that a reference “teaches” something beyond its bare

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solid fiber core from which longitudinal ribs extend radially outward,” the Federal Circuit reversed the rejection for lack of “substantial evidentiary support,” stating as follows:

There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs “compressed less than the fiber core” or “a generally cylindrical compressed, solid fibre core.” ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions. ... Lastly, turning to the issue of spacing of the ribs, Figure 8 shows a space between the bottommost ribs, and there is arguably some space shown between other ribs. However, because it is neither clear that Sasaki discloses a core nor which portions of Sasaki's tampon the Board considered to be the ribs and which the Board considered to be the core, we cannot say that substantial evidence supports the Board's determination that Sasaki discloses ribs separated from each other “at the proximal end by an amount greater than” than at “the distal end.”

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<sup>52</sup> In *Lee*, the USPTO argued that, to the “common sense of a person of ordinary skill in the art,” it was obvious that one could combine a prior patent for an on-screen television menu with an on-screen picture-quality adjustment for a video game played on a television illustrated in the game’s handbook. The Federal Circuit ruled that obviousness must be based on “objective evidence of record.” Finding no specific published suggestion in the record, the Federal Circuit ruled the invention patentable. *See id.*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (describing the BPAI’s obligation to develop an evidentiary basis for its factual findings to allow for meaningful judicial review under the substantial evidence standard).

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But the Board's decision, adopting the Examiner's premise, lacks the necessary substantial evidence to support a rejection of Kotzab’s claims. Specifically, there is not substantial evidence to show that “one system” is the same thing as “one sensor.” The words “sensor” and “probe” are used throughout Evans to refer to the device that measures the mold temperature. ... Evans clearly never uses the term “system” as a substitute for the simple temperature measuring device it calls “sensor.” And, the Board made no reference to any evidence in the record that would equate “one system” with “one sensor.”

As mentioned previously, more than a mere scintilla of evidence is necessary to support the Board's implicit conclusion that “one system” is equal to “one sensor.” Based on the entirety of Evans’ disclosure, we cannot say that there is such relevant evidence as a reasonable mind might accept as adequate to support the conclusion that “one system” means “one sensor.”

*See id.*, 217 F.3d 1365, 1370-71 (Fed. Cir. 2000) (underline added).

recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective documentary evidence.<sup>54</sup> Thus, when a party to a matter asserts that a reference “teaches” something beyond its bare recitations/direct disclosure, and that factual assertion is challenged by an opposite party, the law requires that the asserting party provide objective evidentiary support to “close the gap” between what the reference recites and the what the asserting party *alleges* the reference teaches; in the absence of such evidence, there should be no finding of fact in favor of the asserted teaching.<sup>55,56,57,58</sup> For each instance below in which the USPTO has made an unsupported characterization, Applicant accordingly requests that the USPTO either (1) withdraw the corresponding claim rejection or (2) provide an affidavit setting forth objectively verifiable evidence sufficient to “close the gap” between the characterization and what the reference actually recites.

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<sup>54</sup> See *Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1473 (Fed. Cir. 1997) (“The district court’s holding misapprehends the rigors of anticipation. For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art... **Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there. An expert’s conclusory testimony, unsupported by the documentary evidence, cannot supplant the requirement of anticipatory disclosure in the prior art reference itself.**”) (emphasis added); see also *Genzyme Corp. v. Atrium Med. Corp.*, 315 F. Supp. 2d 552, 563 (D. Del. 2004) (“For a patent to be anticipated, every element of a patent claim must appear in a single reference. **Other references and opinion may be used to reveal what the reference would have meant to those skilled in the art at the time of the invention.... For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. Presumed knowledge of one skilled in the art does not allow an expert to read into the reference elements that are not there.**”) (emphasis added)

<sup>55</sup> See *Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) . In *Rapoport*, the Federal Circuit affirmed the Board’s holding that a publication did not anticipate a claim, reasoning as follows (emphasis added):

Having construed the disputed term in the interference count and affirmed the Board’s interpretation, we can properly address the merits of Rapoport’s anticipation argument. The Board found that the disclosure of the FPR Publication was limited to treatment of anxiety in patients suffering from sleep apnea with buspirone, and did not address treatment of the underlying sleep apnea disorder. What a reference **teaches** is a question of fact.... There is no disclosure in the FPR Publication of tests in which buspirone is administered to patients suffering from sleep apnea with the intent to cure the underlying condition.... The Board also correctly found that the FPR Publication does not show administering buspirone in any specific amounts to patients suffering from sleep apnea.... We note that there is no mention in the FRP Publication of administering buspirone to a patient at bedtime.... Therefore, for all the reasons stated above, we find that the Board’s conclusion that the FPR Publication does not disclose administration of buspirone to patients suffering from sleep apnea to treat sleep apnea is supported by substantial evidence.

<sup>56</sup> See *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing PTO and holding, when PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”).

<sup>57</sup> See *In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009).

<sup>58</sup> See *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000).

As can be seen from the foregoing, for example, the USPTO-identified portions of Madden do not recite the text of at least Clause [c] of Independent Claim 1: “exposing at least a part of the created one or more mote-addressed content indexes to an aggregator of (i) a first-set content index from a first set of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.” Instead, Madden recites “Grouping in TAG is functionally equivalent to the GROUP BY clause in SQL: each sensor reading is placed into exactly one group, and groups are partitioned according to an expression over one or more attributes. The basic grouping technique is to push the expression down with the query, ask nodes to choose the group they belong to, and then, as answers flow back, update aggregate values in the appropriate groups.” (Madden Section 4.2 Grouping). Consequently, on its face, Madden does not show the text of at least Clause [c] of Independent Claim 1.

Applicant has shown by direct quotations that Independent Claim 1 and the Madden reference are very different on their faces. *See supra* at p. 43 (quotation of Claim 1); and at p. 54 *et seq.* (quotation of Madden). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the USPTO-cited art is very different from Claim 1, and Applicant has noted that the USPTO has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 1 either under the MPEP or under controlling legal standards. *See supra* at pp. 20–43.

Accordingly, insofar as that Madden does not recite the text of at least Clauses [a], [b] and [c] of Applicant’s Independent Claim 1, and insofar as that the USPTO has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Madden could be modified/combined to teach at least Clauses [a], [b] and [c] of Independent Claim 1, Applicant respectfully points out that under the MPEP guidelines as set forth above, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 1 for at least these reasons. Thus, Applicant respectfully asks the USPTO to hold Independent Claim 1 allowable and to issue a Notice of Allowability of same.

With respect to the USPTO assertions regarding the teachings of Madden, Applicant demonstrated above that the express recitations of Madden are not as the USPTO alleges, and that the USPTO has provided no evidence—let alone the preponderance of the evidence required—to support the USPTO assertions as to the factual conclusion as to what Madden “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, the USPTO has presented no evidence that Madden teaches as asserted by the USPTO. In addition, Applicant respectfully points out that even if the USPTO’s assertions regarding the teachings of Madden were supported, such would be of no moment in that the USPTO has yet to connect the alleged teaching of Madden to the actual express language of Applicant’s Independent Claim 1. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that the USPTO hold Independent Claim 1 allowable and issue a Notice of Allowability of same.

- c) **The USPTO-Suggested Modifications/Combinations to Meet the Recitations of Independent Claim 1 Are a “Mere Conclusory Statement” Without Evidentiary Support/Change the Principle of Operation of Components of Cited References/Render Such Components Unfit for Intended Purpose; No Teaching to Combine/Modify Components as a Matter of Law.**

In addition and/or in the alternative to the foregoing, Applicant additionally points out that, not only has the USPTO yet to adduce any objectively verifiable evidence sufficient to support the USPTO assertions regarding alleged teaching to modify/combine Mulgund and/or Madden to meet the recitations of amended Independent Claim 1, there can be no such teaching as a matter of law. Specifically, shown following is that (1) any USPTO assertion regarding a teaching to modify/combine the technologies of Mulgund with the technologies of Madden would appear to be based on conclusory statement(s) without evidentiary support.

**(1) The USPTO Assertions Regarding A Teaching to Modify/Combine to Meet the Recitations of Independent Claim 1 Are Based on “Mere Conclusory Statements” Without Evidentiary Support**

As explained above, the Supreme Court has stated that when an examiner attempts to establish unpatentability, the USPTO’s “*analysis should be made explicit*” ... [*and that*] rejections ... *cannot be sustained by mere conclusory statements*; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.’ *KSR v. Teleflex*, 550 U.S. 398; 127 S. Ct. 1727 at 1741 (citations omitted).

Concerning Claim 1, as noted above, the USPTO has stated as follows:

As to claim 1, Mulgund teaches:

determining at least one of a sensing function or a control function of a second mote [discovering and maintaining the distributed sensor network topology (par. [0007]), wherein at least one of a sensing function or a control function is interpreted to be at least one of the data elements outlined in paragraphs 0021 - 0024]; and

creating one or more mote-addressed content indexes of the second mote in response to said determining [building a database model by updating relational database logical design tables at each step of the discovering step (par. 0007)]. Mulgund also shows a sensor network modeling agent (summary of the invention) for performing the recited functions.

Mulgund does not show that said determining and creating is being performed at a first mote.

Madden shows:

determining at least one of a sensing function or a control function at a first mote [parent mote] of a second mote [child mote] [asking sensors to choose the group they belong to forward tagged partial state record with the group id] (section 4.2 Grouping); and

creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having said determining and creating being performed at a first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates)."

Office Action, pp. 11-12 (9 March 2010).

For reasons set forth above, Applicant respectfully submits that at least the underlined assertions set forth above are unsupported and erroneous, and appear to mischaracterize both

the Mulgund and Madden references. As such, this statement is neither evidence nor argument based upon evidence. Instead, the USPTO has attempted to support the present rejection based on a “mere conclusory statement[.]” Applicant accordingly requests that a rational underpinning for the present rejection be made explicit, or that the rejection be withdrawn.

**d) The USPTO Has Not Met Its Burden to Establish a *Prima Facie* Case of Unpatentability for Independent Claim 1**

As set forth supra, the MPEP states as follows: “the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant. . . . If examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent.” MPEP § 2107 (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992)); *In Re Glaug*, 283 F.3d 1335, 62 USPQ2d 1151 (Fed. Cir. 2002) (“During patent examination the PTO bears the initial burden of presenting a *prima facie* case of unpatentability. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984). If the USPTO fails to meet this burden, then the applicant is entitled to the patent.”). This initial burden is a cornerstone of examination principles and, as such, the Board ensures on appeal that a *prima facie* case for the unpatentability of Applicant’s claims has been established *without any deference to the USPTO*. *Ex Parte Frye*, Appeal 2009-006013, pp. 9-10 (BPAI 2010) (“an applicant can overcome a rejection by showing insufficient evidence of *prima facie* [unpatentability] ... the Board reviews the particular finding(s) contested by an appellant *anew*.”) (emphasis added). Accordingly, unless and until the USPTO presents evidence establishing *prima facie* unpatentability, an applicant is entitled to a patent on all claims presented for examination.

In attempting to establish a *prima facie* case of unpatentability, the USPTO must consider any evidence produced by Applicant. 37 CFR 1.132; *United States v. Adams*, 383 U.S. 39, 148 USPQ 479 (1966) (Great reliance must be placed on this type of evidence). Importantly, the production of such evidence by Applicant is not an admission that the USPTO has established a *prima facie* case of unpatentability, nor is it a rebuttal to any establishment of a *prima facie* case.



Rather, the USPTO retains the burden of establishing a *prima facie* case in light of and while considering any evidence produced by Applicant. MPEP 716.01(a) (“Affidavits or declarations, when timely presented, containing evidence of criticality or unexpected results, commercial success, long-felt but unsolved needs, failure of others, skepticism of experts, etc., *must be considered by the examiner in determining the issue of [unpatentability, e.g.,] obviousness of claims for patentability under 35 U.S.C. [e.g.,] 103.*”) (emphasis added); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538, 218 USPQ 871, 879 (Fed. Cir. 1983) (“evidence rising out of the so-called ‘secondary considerations’ must always when present be considered en route to a determination of obviousness.”) (emphasis added); *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966); *In re Palmer*, 451 F.2d 1100, 172 USPQ 126 (CCPA 1971); *In re Fielder*, 471 F.2d 640, 176 USPQ 300 (CCPA 1973); *In re Margolis*, 785 F.2d 1029, 228 USPQ 940 (Fed. Cir. 1986). Moreover, lack of objective evidence or any finding of that the evidenced produced by Applicant is unconvincing or irrelevant does not weigh in favor of unpatentability (e.g., obviousness). *Miles Labs. Inc. v. Shandon Inc.*, 997 F.2d 870, 878, 27 USPQ2d 1123, 1129 (Fed. Cir. 1993), *cert. denied*, 127 L. Ed. 232 (1994) (The *lack of objective evidence supporting patentability does not weigh in favor of unpatentability*).

Consequently, under the MPEP standards as set forth above there can be no teaching to modify/combine the cited references to meet the recitations of Applicant’s Claims as a matter of law. Accordingly, in light of the MPEP standards for patentability, Applicant respectfully requests that the USPTO hold each of Applicant’s Claims patentable and issue a Notice of Allowance of the same for at least the foregoing reasons.

## 2. Dependent Claims 2-20 and 46-48 Patentable for at Least Reasons of Dependency from Independent Claim 1

Claims 2-20 and 46-48<sup>59</sup> depend either directly or indirectly from Independent Claim 1. “A claim in dependent form shall be construed to incorporate by reference all the limitations of

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<sup>59</sup> In relation to these dependent claims, the USPTO has provided no objectively verifiable evidence, nor argument based on objectively verifiable evidence, in support of its assertions regarding what the USPTO-cited material “discloses.” Insofar as this alleged disclosure is not literally recited in such material, Applicant respectfully asserts that the Examiner must have relied on “personal knowledge” or taken improper “official notice” of one or more factors to reach each of these assertions. Applicant accordingly requests an appropriate affidavit or declaration in

the claim to which it refers.” *See* 35 U.S.C. § 112 paragraph 4. Consequently, Dependent Claims 2-20 and 46-48 are patentable for at least the reasons why Independent Claim 1 is patentable. Accordingly, Applicant respectfully requests that the USPTO hold Dependent Claims 2-20 and 46-48 patentable for at least the foregoing reasons, and issue a Notice of Allowability on same.

**C. Technical Material Cited by the USPTO Does Not Show/Suggest Recitations of Independent Claim 21 and Dependent Claims 22-40 and 49-50 as Presented Herein; Notice of Allowance of Same Respectfully Requested**

**1. Independent Claim 21**

Independent Claim 21 recites as follows:

21. A system comprising:

[a] means for determining at least one of a sensing function or a control function of a second mote at a first mote, the first mote and the second mote administered by a first network administrator owned or controlled by a first business entity;

[b] means for creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining; and

[c] **means for reporting with hardware at least a part of the created mote-addressed content index created by the index creation agent to an aggregator of (i) a first-set content index from a first set of motes, including the first mote and the second mote, administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.**<sup>60</sup> (Emphasis added)

As shown following, (1) the USPTO yet to fulfill its duty to provide the broadest reasonable interpretation consistent with the specification of Independent Claim 21 by an unreasonable mapping of the claim onto the USPTO -cited material, which fails to recite several express recitations of these claims; (2) the USPTO is asserting one or more characterizations that each cited reference “teaches” at least some of the text of Independent Claim 21, but has not yet provided any objectively verifiable evidence supporting these assertions; and (3) the USPTO has

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support of any of these rejections that are to be maintained, including any considerations purported to reflect what is “well known in the art.” *See, e.g.*, 37 C.F.R. 1.104(d)(2).

<sup>60</sup> The lettering of the clauses herein is merely for sake of clarity of argument and should not be taken to imply any particular ordering of the clauses.

not yet adduced objective evidence of how to modify/combine the cited art to match the recitations of Independent Claim 21.

a) **The USPTO Has Not Met Its Duty to Provide a Broadest Reasonable Interpretation of Independent Claim 21 Consistent with the Specification through Attempts to Map Independent Claim 21 onto USPTO-Cited Technical Material that Fails to Recite Several Express Terms of Independent Claim 21 and Therefore the USPTO Has Not Met Its Burden to Establish a *Prima Facie* Case of Unpatentability for Independent Claim 21**

Concerning this, the USPTO has recently stated as follows:

As to claim 21 , Mulgund inherently shows:

means for determining at least one of a sensing function or a control function of a second mote [discovering and maintaining the distributed sensor network topology (par. [0007]), wherein at least one of a sensing function or a control function is interpreted to be at least one of the data elements outlined in paragraphs 0021 – 0024]; and

an index creation agent including means for creating one or more mote addressed content indexes of the second mote in response to said determining [building a database model by updating relational database logical design tables at each step of the discovering step (par. 0007)], wherein at least one of the means for determining or means for creating includes hardware for at least one of determining or creating (par. [0026]).

Mulgund also shows a sensor network modeling agent (summary of the invention) for performing the recited functions. Mulgund does not show that said determining and creating is being performed at a first mote.

Madden **inherently shows means for determining at least one of a sensing function or a control function at a first mote [parent mote] of a second mote (child mote) [asking sensors to choose the group they belong to forward tagged partial state record with the group id] (section 4.2 Grouping); and**

an index creation agent including means for creating one or more mote addressed content indexes of the second mote at the first mote in response to said determining [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping), wherein at least one of the means for determining or means for creating includes hardware for at least one of determining or creating (section 2 Motes and Ad-Hoc Networks).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Mulgund by having said determining and creating being performed at a first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).

Office Action, pp. 14-16 (9 March 2010) (emphasis added).<sup>61</sup>

As set forth above, Independent Claim 21 recites as follows: “A system comprising: [a] means for determining at least one of a sensing function or a control function of a second mote at a first mote, the first mote and the second mote administered by a first network administrator owned or controlled by a first business entity; [b] means for creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining; and [c] means for reporting with hardware at least a part of the created mote-addressed content index created by the index creation agent to an aggregator of (i) a first-set content index from a first set of motes, including the first mote and the second mote, administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.”<sup>62</sup>

It appears to Applicant that the USPTO has mapped “[a] means for determining at least one of a sensing function or a control function of a second mote at a first mote, the first mote and the second mote administered by a first network administrator owned or controlled by a first business entity;” onto a configuration by which “*discovering and maintaining the distributed sensor network topology by applying at every access point a quasi-recursive algorithm, which causes the network modeling agent to visit a first sensor node and mark the first node visited.*” It also appears to Applicant that the USPTO has mapped “[b] means for creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining” onto “*The network modeling agent builds the database model by updating relational database logical design tables at each step of the discovering step.*”. Applicant notes that the USPTO has not explained how it reaches such mappings under the framework of the broadest reasonable interpretation consistent with the specification as is the USPTO’s burden

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<sup>61</sup> Applicant respectfully asserts that the USPTO has apparently not examined the recitations of Applicant’s claims, but appears to have not addressed the express language of both Applicant’s claims and the cited technical material. Accordingly, Applicant respectfully maintains that the USPTO has not established a *prima facie* case of the unpatentability of any pending claim for at least this reason. Notwithstanding the foregoing, Applicant demonstrates herein that even if the USPTO had followed the MPEP examination guidelines, no *prima facie* case of unpatentability would be extant.

<sup>62</sup> The lettering of the clauses herein is merely for sake of clarity of argument and should not be taken to imply any particular ordering of the clauses.

(e.g., such as by examples drawn from Applicant's claims or detailed description),<sup>63</sup> and furthermore, Applicant points out that this mapping does not address at least the "means for reporting with hardware at least a part of the created mote-addressed content index created by the index creation agent to an aggregator of (i) a first-set content index from a first set of motes, including the first mote and the second mote, administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity."

In view of the foregoing, Applicant points out that although Independent Claim 21 has been quoted in the present rejection, several claim terms have not been addressed in its analysis. Because the USPTO-cited material fails to recite at least the foregoing bolded recitations of Independent Claim 21,<sup>64</sup> under the MPEP guidelines as set forth above, such material does not establish a *prima facie* case of the unpatentability of Independent Claim 21. For these reasons, Applicant respectfully asks the USPTO to hold Independent Claim 21 allowable and to issue a Notice of Allowability of same.

**b) The USPTO is Characterizing/Asserting U.S. Pat. Application No. US 2002/0161751 ("Mulgund") and/or "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" ("Madden") to "Teach" the Text of Independent Claim 21, But Does Not Support Its Characterization/Assertion, Therefore the USPTO Has Not Met Its Burden to Establish a *Prima Facie* Case of Unpatentability for Independent Claim 21**

The USPTO has stated as follows:

As to claim 21 , Mulgund inherently shows:

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<sup>63</sup> Irrespective of a desire to be cooperative, the ability of any patent practitioner to help the Examiner fulfill this burden on the record is tightly curtailed by pre- and post-issuance legal standards and by various ethical duties in tension. *See, e.g.*, 37 C.F.R. § 10.83 ("A practitioner should represent a client zealously within the bounds of the law."); 37 C.F.R. § 10.84 ("[A] practitioner shall not intentionally ... [p]rejudice or damage a client during the course of a professional relationship, except as required under this [ethics] part."); and 37 C.F.R. § 10.76 ("A practitioner should represent a client competently."). For these and other reasons, this document notes instances in which the USPTO did not follow the prescribed rules rather than seeking to interpret claims and/or to adduce evidence on the USPTO's behalf.

<sup>64</sup> Although Independent Claim 21 has been quoted in the present rejection, several claim terms have not been addressed in its analysis, as shown below.

means for determining at least one of a sensing function or a control function of a second mote [discovering and maintaining the distributed sensor network topology (par. [0007]), wherein at least one of a sensing function or a control function is interpreted to be at least one of the data elements outlined in paragraphs 0021 – 0024]; and

an index creation agent including means for creating one or more mote addressed content indexes of the second mote in response to said determining [building a database model by updating relational database logical design tables at each step of the discovering step (par. 0007)], wherein at least one of the means for determining or means for creating includes hardware for at least one of determining or creating (par. [0026]).

Mulgund also shows a sensor network modeling agent (summary of the invention) for performing the recited functions. Mulgund does not show that said determining and creating is being performed at a first mote.

Madden inherently shows means for determining at least one of a sensing function or a control function at a first mote [parent mote] of a second mote (child mote) [asking sensors to choose the group they belong to forward tagged partial state record with the group id] (section 4.2 Grouping); and

an index creation agent including means for creating one or more mote addressed content indexes of the second mote at the first mote in response to said determining [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping), wherein at least one of the means for determining or means for creating includes hardware for at least one of determining or creating (section 2 Motes and Ad-Hoc Networks).

**It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Mulgund by having said determining and creating being performed at a first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).**

Office Action, pp. 14-16 (9 March 2010) (emphasis modified). Applicant respectfully disagrees and traverses the rejection.

**(1) The USPTO Has Put Forth No Evidence Supporting Its Characterization/Assertion That Mulgund “Teaches” Recitations of Independent Claim 21**

Applicant respectfully points out that Applicant has reviewed those portions of the Mulgund reference identified by the USPTO, and so far as Applicant can discern, the Mulgund reference does not recite “circuitry for receiving, at a first node, provenance data including at least a handle relating to a first software program active on a second node” or “circuitry for executing one or more instructions received from the second node, on the first node” as recited

in Applicant's Independent Claim 21.<sup>65</sup> Rather, the textual portions of Mulgund cited by the USPTO actually recite as follows:

[0007] In another aspect, the present invention is a *method of database modeling that makes it possible to create, store, and update a virtual model of a network of sensors within a relational database structure*. The network modeling agent dynamically updates various sensor node data and link data that collectively define an instantaneous "state" of the sensor network into the database logical design. The network modeling agent thereby facilitates access, visualization, and the use of a stream of information generated by the network of distributed sensors. The sensor nodes to be interrogated by the network modeling agent are assumed to be uniquely addressable and in communication, using networking protocols, with one another through links and with a database server through one or more access points. A method according to the present invention comprises the steps of discovering and maintaining the distributed sensor network topology by applying at every access point a quasi-recursive algorithm, which causes the network modeling agent to visit a first sensor node and mark the first node visited, push the marked first node onto a stack, and while the stack is non-empty, query the node at the top of the stack for a list of current links to the node at the top, compare the list of current links to a list of historical links to the node at the top of the stack and update the historical link and historical node information, and if there are no unmarked nodes reachable from a current link then pop the stack, otherwise visit the next reachable unmarked node, mark the next node and push it onto the stack. The network modeling agent builds the database model by updating relational database logical design tables at each step of the discovering step. The agent maintains the database model by periodically reapplying the interrogating algorithm, thereby updating the database model to account for sensor node and link additions and deletions. The periodicity of updates is preferably such that a near real-time topology of the sensor network is maintained.

[0021] an identity (unique identifying information such as a numeric address) of each of the sensing nodes 2 in the network 4, as well as any metadata about each node;

[0022] a connectivity of each of the sensing nodes 2; i.e., a structural representation of the network topology that could be used to reconstruct a diagram such as FIG. 1;

[0023] an up-to-date information content at each of the sensing nodes 2; i.e., a real-time snapshot and time-history of the data of interest generated at each node location by an attached suite of sensors 16, as depicted in FIG. 2; and

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<sup>65</sup> Nor does Mulgund recite as the USPTO alleges, for that matter; Applicant again points out that, in derogation of the MPEP guidelines, the USPTO has not addressed the language of Applicant's Independent Claim 21.

[0024] a history of the network 4 from the moment the model was first constructed, which would allow a reconstruction of the network's state at any time in the past.

Mulgund at paragraphs 7, 21-24 (emphasis added).

The USPTO is characterizing Mulgund to “teach” at least some of the text of Independent Claim 21, but does not support its characterization with objectively verifiable evidence. The USPTO has therefore not met its burden to establish a *prima facie* case of unpatentability for Independent Claim 21. What a reference “teaches” is a question of fact.<sup>66,67,68</sup> Conclusory statements that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective evidence. *See In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009);<sup>69</sup> *In re Lee*, 277 F.3d

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<sup>66</sup> *See Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) (“What a reference **teaches** is a question of fact... Therefore, we review the Board's **characterization of the disclosure** in the FPR Publication for **substantial evidence**.”) (emphasis added).

<sup>67</sup> *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing the PTO and holding when the PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”)

<sup>68</sup> Anticipation, as well as what a reference teaches, is a question of fact. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1323 (Fed. Cir. 2002).

<sup>69</sup> In *McNeil*, the Examiner had rejected claims reciting a tampon having “a generally cylindrical compressed, solid fibre core” and ribs “compressed less than the fiber core” in view of a Japanese patent application (“Sasaki”). *McNeil* appealed to the Board of Patent Appeals and Interferences, which “specifically found that ‘Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward.’” *See id.*, 2008-1546, slip op. 1, 3 (Fed. Cir. July 31, 2009). In light of this and its finding that of each rib of Sasaki being “compressed less than the fiber core,” the Board affirmed the rejections. Insofar that the Sasaki reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its statement that “Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward,” the Federal Circuit reversed the rejection for lack of “substantial evidentiary support,” stating as follows:

There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs “compressed less than the fiber core” or “a generally cylindrical compressed, solid fibre core.” ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions. ... Lastly, turning to the issue of spacing of the ribs, Figure 8 shows a space between the bottommost ribs, and there is arguably some space shown between other ribs. However, because it is neither clear that Sasaki discloses a core nor which portions of Sasaki's tampon the Board considered to be the ribs and which the Board considered to be the core, we cannot say that substantial evidence supports the Board's determination that Sasaki discloses ribs separated from each other “at the proximal end by an amount greater than” than at “the distal end.”

*See id.*, 2008-1546, slip op. 1, 10-11 (Fed. Cir. July 31, 2009).



1338 (Fed. Cir. 2002);<sup>70</sup> *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000) (“Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. ... Broad conclusory statements standing alone are not “evidence.”).<sup>71</sup> Even if the PTO personnel were to seek to support their characterizations with an expert witness affidavit, the law is that conclusory statements by an expert that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective documentary evidence.<sup>72</sup> Thus, when a party to a matter asserts that a

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<sup>70</sup> In *Lee*, the USPTO argued that, to the “common sense of a person of ordinary skill in the art,” it was obvious that one could combine a prior patent for an on-screen television menu with an on-screen picture-quality adjustment for a video game played on a television illustrated in the game’s handbook. The Federal Circuit ruled that obviousness must be based on “objective evidence of record.” Finding no specific published suggestion in the record, the Federal Circuit ruled the invention patentable. *See id.*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (describing the BPAI’s obligation to develop an evidentiary basis for its factual findings to allow for meaningful judicial review under the substantial evidence standard).

<sup>71</sup> In *Kotzab*, the Federal Circuit reversed the BPAI as follows:

The Examiner cites Evans for teaching that “one *system* constructed and operated according to the invention may be used to control a number of valves.” Evans application, p. 19, ll. 6-8 (emphasis added). In view of this disclosure only, the Examiner concluded that Evans teaches the use of one *sensor* to control a number of valves. This conclusion must necessarily rest on the unstated premise by the Examiner that “one system” is equal to “one sensor.”

But the Board’s decision, adopting the Examiner’s premise, lacks the necessary substantial evidence to support a rejection of Kotzab’s claims. Specifically, there is not substantial evidence to show that “one system” is the same thing as “one sensor.” The words “sensor” and “probe” are used throughout Evans to refer to the device that measures the mold temperature. ... Evans clearly never uses the term “system” as a substitute for the simple temperature measuring device it calls “sensor.” And, the Board made no reference to any evidence in the record that would equate “one system” with “one sensor.”

As mentioned previously, more than a mere scintilla of evidence is necessary to support the Board’s implicit conclusion that “one system” is equal to “one sensor.” Based on the entirety of Evans’ disclosure, we cannot say that there is such relevant evidence as a reasonable mind might accept as adequate to support the conclusion that “one system” means “one sensor.”

*See id.*, 217 F.3d 1365, 1370-71 (Fed. Cir. 2000) (underline added).

<sup>72</sup> *See Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1473 (Fed. Cir. 1997) (“The district court’s holding misapprehends the rigors of anticipation. For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art... **Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there. An expert’s conclusory testimony, unsupported by the documentary evidence, cannot supplant the requirement of anticipatory disclosure in the prior art reference itself.**”) (emphasis added); *see also Genzyme Corp. v. Atrium Med. Corp.*, 315 F. Supp. 2d 552, 563 (D. Del. 2004) (“For a patent to be anticipated, every element of a patent claim must appear in a single reference. **Other references and opinion may be used to reveal what the reference would have meant to those skilled in the art at the time of the invention.... For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to**

reference “teaches” something beyond its bare recitations/direct disclosure, and that factual assertion is challenged by an opposite party, the law requires that the asserting party provide objective evidentiary support to “close the gap” between what the reference recites and the what the asserting party *alleges* the reference teaches; in the absence of such evidence, there should be no finding of fact in favor of the asserted teaching.<sup>73,74,75,76</sup> For each instance below in which the USPTO has made an unsupported characterization, Applicant accordingly requests that the USPTO either (1) withdraw the corresponding claim rejection or (2) provide an affidavit setting forth objectively verifiable evidence sufficient to “close the gap” between the characterization and what the reference actually recites.

As can be seen from the foregoing, for example, the USPTO-identified portions of Mulgund do not recite the text of at least Clause [c] of Independent Claim 21: “means for reporting with hardware at least a part of the created mote-addressed content index created by the index creation agent to an aggregator of (i) a first-set content index from a first set of motes, including the first mote and the second mote, administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second

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**prove its existence in the prior art. Presumed knowledge of one skilled in the art does not allow an expert to read into the reference elements that are not there.”**) (emphasis added)

<sup>73</sup> See *Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) . In *Rapoport*, the Federal Circuit affirmed the Board’s holding that a publication did not anticipate a claim, reasoning as follows (emphasis added):

Having construed the disputed term in the interference count and affirmed the Board’s interpretation, we can properly address the merits of Rapoport’s anticipation argument. The Board found that the disclosure of the FPR Publication was limited to treatment of anxiety in patients suffering from sleep apnea with buspirone, and did not address treatment of the underlying sleep apnea disorder. What a reference teaches is a question of fact,.... There is no disclosure in the FPR Publication of tests in which buspirone is administered to patients suffering from sleep apnea with the intent to cure the underlying condition.... The Board also correctly found that the FPR Publication does not show administering buspirone in any specific amounts to patients suffering from sleep apnea.... We note that there is no mention in the FRP Publication of administering buspirone to a patient at bedtime.... Therefore, for all the reasons stated above, we find that the Board’s conclusion that the FPR Publication does not disclose administration of buspirone to patients suffering from sleep apnea to treat sleep apnea is supported by substantial evidence.

<sup>74</sup> See *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing PTO and holding, when PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”).

<sup>75</sup> See *In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009).

<sup>76</sup> See *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000).

business entity.”<sup>77</sup> Instead, Mulgund indicates a method of database modeling that makes it possible to create, store, and update a virtual model of a network of sensors within a relational database structure. The network modeling agent dynamically updates various sensor node data and link data that collectively define an instantaneous "state" of the sensor network into the database logical design. The network modeling agent thereby facilitates access, visualization, and the use of a stream of information generated by the network of distributed sensors.”

Applicant has shown by direct quotations that Independent Claim 21 and the Mulgund reference are very different on their faces. *See supra* at p. 63 (quotation of Claim 21); and at p. 68 *et seq.* (quotation of Mulgund). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the USPTO-cited art is very different from Claim 21, and Applicant has noted that the USPTO has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 21 either under the MPEP or under controlling legal standards. *See supra* at pp. 20–43.

Accordingly, insofar as that Mulgund does not recite the text of at least Clauses [a], [b] and [c] of Applicant’s Independent Claim 21, and insofar as that the USPTO has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Mulgund could be modified/combined to teach at least Clauses [a], [b] and [c] of Independent Claim 21, Applicant respectfully points out that under the MPEP guidelines as set forth above, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 21 for at least these reasons. Thus, Applicant respectfully asks the USPTO to hold Independent Claim 21 allowable and to issue a Notice of Allowability of same.

With respect to the USPTO assertions regarding the teachings of Mulgund, Applicant demonstrated above that the express recitations of Mulgund are not as the USPTO alleges, and that the USPTO has provided no evidence—to support the USPTO assertions as to the factual conclusion as to what Mulgund “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, the USPTO has presented no evidence that Mulgund teaches as asserted

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<sup>77</sup> Neither do the USPTO-identified portions of Mulgund recite “circuitry for receiving, at [the] first node, provenance data including at least a handle relating to a first software program active on [the] second node,” as recited in Clause [a].

by the USPTO. In addition, Applicant respectfully points out that even if the USPTO's assertions regarding the teachings of Mulgund were supported, such would be of no moment in that the USPTO has yet to connect the alleged teaching of Mulgund to the actual express language of Applicant's Independent Claim 21. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that the USPTO hold Independent Claim 21 allowable and issue a Notice of Allowability of same.

**(2) The USPTO Has Put Forth No Evidence Supporting Its Characterization/Assertion That Madden "Teaches" Recitations of Independent Claim 21**

As noted above, the USPTO has stated as follows:

As to claim 21, Mulgund inherently shows:

means for determining at least one of a sensing function or a control function of a second mote [discovering and maintaining the distributed sensor network topology (par. [0007]), wherein at least one of a sensing function or a control function is interpreted to be at least one of the data elements outlined in paragraphs 0021 – 0024]; and

an index creation agent including means for creating one or more mote addressed content indexes of the second mote in response to said determining [building a database model by updating relational database logical design tables at each step of the discovering step (par. 0007)], wherein at least one of the means for determining or means for creating includes hardware for at least one of determining or creating (par. [0026]).

Mulgund also shows a sensor network modeling agent (summary of the invention) for performing the recited functions. Mulgund does not show that said determining and creating is being performed at a first mote.

Madden inherently shows means for determining at least one of a sensing function or a control function at a first mote [parent mote] of a second mote (child mote) [asking sensors to choose the group they belong to forward tagged partial state record with the group id] (section 4.2 Grouping); and

an index creation agent including means for creating one or more mote addressed content indexes of the second mote at the first mote in response to said determining [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping), wherein at least one of the means for determining or means for creating includes hardware for at least one of determining or creating (section 2 Motes and Ad-Hoc Networks).

**It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Mulgund by having said determining and creating being performed at a first mote in order to lower the number of message**

**transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).**

Office Action, pp. 14-16 (9 March 2010) (emphasis modified).

Applicant has pointed out above that the USPTO has not engaged in the framework of the broadest reasonable interpretation consistent with the specification regarding Clauses [c], and accordingly has not yet addressed at least the “means for reporting with hardware at least a part of the created mote-addressed content index created by the index creation agent to an aggregator of (i) a first-set content index from a first set of motes, including the first mote and the second mote, administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.” recitations of Clause [c]. Accordingly, until the USPTO has supported its statement under the framework of the broadest reasonable interpretation consistent with the specification Applicant here returns to the express language of the claim and thus respectfully points out that Applicant has reviewed those portions of the Madden reference identified by the USPTO, and so far as Applicant can discern, the Madden reference does not recite “means for reporting with hardware at least a part of the created mote-addressed content index created by the index creation agent to an aggregator of (i) a first-set content index from a first set of motes, including the first mote and the second mote, administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.” as recited in Applicant’s Independent Claim 21. Rather, the textual portions of Madden cited by the USPTO actually recite as follows:

#### 4.2 Grouping

Grouping in TAG is functionally equivalent to the GROUP BY clause in SQL: each sensor reading is placed into exactly one group, and groups are partitioned according to an expression over one or more attributes. The basic grouping technique is to push the expression down with the query, ask nodes to choose the group they belong to, and then, as answers flow back, update aggregate values in the appropriate groups.

Partial state records are aggregated just as in the approach described above, except that those records are now tagged with a group id. When a node is a leaf, it applies the grouping expression to compute a group id. It then tags its partial state record with the group and forwards it on to its parent. When a node receives an

aggregate from a child, it checks the group id. If the child is in the same group as the node, it combines the two values using the combining function. If it is in a different group, it stores the value of the child's group along with its own value for forwarding in the next epoch. If another child message arrives with a value in either group, the node updates the appropriate aggregate. During the next epoch, the node sends the value of all the groups about which it collected information during the previous epoch, combining information about multiple groups into a single message as long as message size permits.

Figure 2 shows an example of computing a query grouped by temperature that selects average light readings. Recall that queries may contain a HAVING clause, which constrains the set of groups in the final query result. This predicate can sometimes be passed into the network along with the grouping expression. The predicate is only sent if it can potentially be used to reduce the number of messages that must be sent: for example, if the predicate is of the form  $\text{MAX}(\text{attr}) > x$ , then information about groups with  $\text{MAX}(\text{attr}) < x$  need not be transmitted up the tree, and so the predicate is sent down into the network.

When a node detects that a group does not satisfy a HAVING clause, it can notify other nodes in the network of this information to suppress transmission and storage of values from that group. Note that HAVING clauses can be pushed down only for monotonic aggregates; nonmonotonic aggregates are not amenable to this technique.

However, not all HAVING predicates on monotonic aggregates can be pushed down; for example,  $\text{MAX}(\text{attr}) > x$  cannot be applied in the network because a node cannot know that, just because its local value of *attr* is less than, the  $x$ , MAX over the entire group is less than. Grouping introduces an additional problem: the number of groups can exceed available storage on any one (nonleaf) device. Our proposed solution is to evict one or more groups from local storage. Once an eviction victim is selected, it is forwarded to the node's parent, which may choose to hold on to the group or continue to forward it up the tree. Notice that a single node may evict several groups in a single epoch (or the same group multiple times, if a bad victim is selected). This is because, once group storage is full, if only one group is evicted at a time, a new eviction decision must be made every time a value representing an unknown or previously evicted group arrives.

Because groups can be evicted, the base station at the top of the network may be called upon to combine partial groups to form an accurate aggregate value. Evicting partially computed groups is known as partial preaggregation, as described in [15].

Thus, we have shown how to partition sensor readings into a number of groups and properly compute aggregates over those groups, even when the amount of group information exceeds available storage in any one device. We will briefly mention experiments with grouping and group eviction policies in Section 5.2. First, we summarize some of the additional benefits of TAG.

Madden at section 4.2 (emphasis added).

Additionally, the USPTO is characterizing Madden to “teach” at least some of the text of Independent Claim 21, but does not support its characterization with objectively verifiable evidence, therefore the USPTO has not met its burden to establish a *prima facie* case of unpatentability for Independent Claim 21. What a reference “teaches” is a question of fact.<sup>78,79,80</sup> Conclusory statements that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective evidence. See *In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009);<sup>81</sup> *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002);<sup>82</sup> *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000) (“Whether the

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<sup>78</sup> See *Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) (“What a reference **teaches** is a question of fact... Therefore, we review the Board's **characterization of the disclosure** in the FPR Publication for **substantial evidence**.”) (emphasis added).

<sup>79</sup> *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing the PTO and holding when the PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”)

<sup>80</sup> Anticipation, as well as what a reference teaches, is a question of fact. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1323 (Fed. Cir. 2002).

<sup>81</sup> In *McNeil*, the Examiner had rejected claims reciting a tampon having “a generally cylindrical compressed, solid fibre core” and ribs “compressed less than the fiber core” in view of a Japanese patent application (“Sasaki”). *McNeil* appealed to the Board of Patent Appeals and Interferences, which “specifically found that ‘Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward.’” See *id.*, 2008-1546, slip op. 1, 3 (Fed. Cir. July 31, 2009). In light of this and its finding that of each rib of Sasaki being “compressed less than the fiber core,” the Board affirmed the rejections. Insofar that the Sasaki reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its statement that “Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward,” the Federal Circuit reversed the rejection for lack of “substantial evidentiary support,” stating as follows:

There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs “compressed less than the fiber core” or “a generally cylindrical compressed, solid fibre core.” ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions. ... Lastly, turning to the issue of spacing of the ribs, Figure 8 shows a space between the bottommost ribs, and there is arguably some space shown between other ribs. However, because it is neither clear that Sasaki discloses a core nor which portions of Sasaki's tampon the Board considered to be the ribs and which the Board considered to be the core, we cannot say that substantial evidence supports the Board's determination that Sasaki discloses ribs separated from each other “at the proximal end by an amount greater than” than at “the distal end.”

See *id.*, 2008-1546, slip op. 1, 10-11 (Fed. Cir. July 31, 2009).

<sup>82</sup> In *Lee*, the USPTO argued that, to the “common sense of a person of ordinary skill in the art,” it was obvious that one could combine a prior patent for an on-screen television menu with an on-screen picture-quality adjustment for a video game played on a television illustrated in the game’s handbook. The Federal Circuit ruled that obviousness must be based on “objective evidence of record.” Finding no specific published suggestion in the record, the Federal Circuit ruled the invention patentable. See *id.*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed.

Board relies on an express or an implicit showing, it must provide particular findings related thereto. ... Broad conclusory statements standing alone are not “evidence.”).<sup>83</sup> Even if the PTO personnel were to seek to support their characterizations with an expert witness affidavit, the law is that conclusory statements by an expert that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective documentary evidence.<sup>84</sup> Thus, when a party to a matter asserts that a reference “teaches” something beyond its bare recitations/direct disclosure, and that factual assertion is challenged by an opposite party, the law requires that the asserting party provide objective evidentiary support to “close the gap” between what the reference recites and the what

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Cir. 2002) (describing the BPAI’s obligation to develop an evidentiary basis for its factual findings to allow for meaningful judicial review under the substantial evidence standard).

<sup>83</sup> In *Kotzab*, the Federal Circuit reversed the BPAI as follows:

The Examiner cites Evans for teaching that “one *system* constructed and operated according to the invention may be used to control a number of valves.” Evans application, p. 19, ll. 6-8 (emphasis added). In view of this disclosure only, the Examiner concluded that Evans teaches the use of one *sensor* to control a number of valves. This conclusion must necessarily rest on the unstated premise by the Examiner that “one system” is equal to “one sensor.”

But the Board’s decision, adopting the Examiner’s premise, lacks the necessary substantial evidence to support a rejection of Kotzab’s claims. Specifically, there is not substantial evidence to show that “one system” is the same thing as “one sensor.” The words “sensor” and “probe” are used throughout Evans to refer to the device that measures the mold temperature. ... Evans clearly never uses the term “system” as a substitute for the simple temperature measuring device it calls “sensor.” And, the Board made no reference to any evidence in the record that would equate “one system” with “one sensor.”

As mentioned previously, more than a mere scintilla of evidence is necessary to support the Board’s implicit conclusion that “one system” is equal to “one sensor.” Based on the entirety of Evans’ disclosure, we cannot say that there is such relevant evidence as a reasonable mind might accept as adequate to support the conclusion that “one system” means “one sensor.”

*See id.*, 217 F.3d 1365, 1370-71 (Fed. Cir. 2000) (underline added).

<sup>84</sup> *See Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1473 (Fed. Cir. 1997) (“The district court’s holding misapprehends the rigors of anticipation. For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art... **Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there. An expert’s conclusory testimony, unsupported by the documentary evidence, cannot supplant the requirement of anticipatory disclosure in the prior art reference itself.**”) (emphasis added); *see also Genzyme Corp. v. Atrium Med. Corp.*, 315 F. Supp. 2d 552, 563 (D. Del. 2004) (“For a patent to be anticipated, every element of a patent claim must appear in a single reference. **Other references and opinion may be used to reveal what the reference would have meant to those skilled in the art at the time of the invention.... For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. Presumed knowledge of one skilled in the art does not allow an expert to read into the reference elements that are not there.**”) (emphasis added)



the asserting party *alleges* the reference teaches; in the absence of such evidence, there should be no finding of fact in favor of the asserted teaching.<sup>85,86,87,88</sup> For each instance below in which the USPTO has made an unsupported characterization, Applicant accordingly requests that the USPTO either (1) withdraw the corresponding claim rejection or (2) provide an affidavit setting forth objectively verifiable evidence sufficient to “close the gap” between the characterization and what the reference actually recites.

As can be seen from the foregoing, for example, the USPTO-identified portions of Madden do *not recite* the text of at least Clause [c] of Independent Claim 21: “means for reporting with hardware at least a part of the created mote-addressed content index created by the index creation agent to an aggregator of (i) a first-set content index from a first set of motes, including the first mote and the second mote, administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.” Instead, Madden recites ““Grouping in TAG is functionally equivalent to the GROUP BY clause in SQL: each sensor reading is placed into exactly one group, and groups are partitioned according to an expression over one or more attributes. The basic grouping technique is to push the expression down with the query, ask nodes to choose the group they belong to, and then, as answers flow back, update aggregate values in the appropriate groups.” (Madden

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<sup>85</sup> See *Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) . In *Rapoport*, the Federal Circuit affirmed the Board’s holding that a publication did not anticipate a claim, reasoning as follows (emphasis added):

Having construed the disputed term in the interference count and affirmed the Board’s interpretation, we can properly address the merits of Rapoport’s anticipation argument. The Board found that the disclosure of the FPR Publication was limited to treatment of anxiety in patients suffering from sleep apnea with buspirone, and did not address treatment of the underlying sleep apnea disorder. What a reference teaches is a question of fact,.... There is no disclosure in the FPR Publication of tests in which buspirone is administered to patients suffering from sleep apnea with the intent to cure the underlying condition.... The Board also correctly found that the FPR Publication does not show administering buspirone in any specific amounts to patients suffering from sleep apnea.... We note that there is no mention in the FRP Publication of administering buspirone to a patient at bedtime.... Therefore, for all the reasons stated above, we find that the Board’s conclusion that the FPR Publication does not disclose administration of buspirone to patients suffering from sleep apnea to treat sleep apnea is supported by substantial evidence.

<sup>86</sup> See *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing PTO and holding, when PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”).

<sup>87</sup> See *In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009).

<sup>88</sup> See *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000).

Section 4.2 Grouping).” Consequently, on its face, Madden does not show the text of at least Clause [c] of Independent Claim 21.

Applicant has shown by direct quotations that Independent Claim 21 and the Madden reference are very different on their faces. *See supra* at p. 63 (quotation of Claim 21); and at p. 74 *et seq.* (quotation of Madden). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the USPTO-cited art is very different from Claim 21, and Applicant has noted that the USPTO has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 21 either under the MPEP or under controlling legal standards. *See supra* at pp. 20–43.

Accordingly, insofar as that Madden does not recite the text of at least Clauses [a], [b] and [c] of Applicant’s Independent Claim 21, and insofar as that the USPTO has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Madden could be modified/combined to teach at least Clauses [a], [b] and [c] of Independent Claim 21, Applicant respectfully points out that under the MPEP guidelines as set forth above, the USPTO-cited technical material does not a establish a *prima facie* case of the unpatentability of Independent Claim 21 for at least these reasons. Thus, Applicant respectfully asks the USPTO to hold Independent Claim 21 allowable and to issue a Notice of Allowability of same.

With respect to the USPTO assertions regarding the teachings of Madden, Applicant demonstrated above that the express recitations of Madden are not as the USPTO alleges, and that the USPTO has provided no evidence—let alone the preponderance of the evidence required—to support the USPTO assertions as to the factual conclusion as to what Madden “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, the USPTO has presented no evidence that Madden teaches as asserted by the USPTO. In addition, Applicant respectfully points out that even if the USPTO’s assertions regarding the teachings of Madden were supported, such would be of no moment in that the USPTO has yet to connect the alleged teaching of Madden to the actual express language of Applicant’s Independent Claim 21. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing

reasons, Applicant respectfully requests that the USPTO hold Independent Claim 21 allowable and issue a Notice of Allowability of same.

- c) **The USPTO-Suggested Modifications/Combinations to Meet the Recitations of Independent Claim 21 Are a “Mere Conclusory Statement” Without Evidentiary Support/Change the Principle of Operation of Components of Cited References/Render Such Components Unfit for Intended Purpose; No Teaching to Combine/Modify Components as a Matter of Law.**

In addition and/or in the alternative to the foregoing, Applicant additionally points out that, not only has the USPTO yet to adduce any objectively verifiable evidence sufficient to support the USPTO assertions regarding alleged teaching to modify/combine Mulgund and/or Madden to meet the recitations of amended Independent Claim 1, there can be no such teaching as a matter of law. Specifically, shown following is that (1) any USPTO assertion regarding a teaching to modify/combine the technologies of Mulgund with the technologies of Madden would appear to be based on conclusory statement(s) without evidentiary support.

**2. Dependent Claims 22-40 and 49-50 Patentable for at Least Reasons of Dependency from Independent Claim 21**

Claims 22-40 and 49-50<sup>89</sup> depend either directly or indirectly from Independent Claim 21. “A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.” *See* 35 U.S.C. § 112 paragraph 4. Consequently, Dependent Claims 22-40 and 49-50 are patentable for at least the reasons why Independent Claim 21 is patentable. Accordingly, Applicant respectfully requests that the USPTO hold Dependent Claims

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<sup>89</sup> In relation to these dependent claims, the USPTO has provided no objectively verifiable evidence, nor argument based on objectively verifiable evidence, in support of its assertions regarding what the USPTO-cited material “discloses.” Insofar as this alleged disclosure is not literally recited in such material, Applicant respectfully asserts that the Examiner must have relied on “personal knowledge” or taken improper “official notice” of one or more factors to reach each of these assertions. Applicant accordingly requests an appropriate affidavit or declaration in support of any of these rejections that are to be maintained, including any considerations purported to reflect what is “well known in the art.” *See, e.g.*, 37 C.F.R. 1.104(d)(2).

22-40 and 49-50 patentable for at least the foregoing reasons, and issue a Notice of Allowability on same.

**D. Technical Material Cited by the USPTO Does Not Show/Suggest Recitations of Independent Claim 41 and Dependent Claims 42 and 44 as Presented Herein; Notice of Allowance of Same Respectfully Requested**

**1. Independent Claim 41**

Independent Claim 41 recites as follows:

41. A system comprising:

[a] a first mote administered by a first network administrator owned or controlled by a first business entity;

[b] at least one mote-appropriate device at a second mote administered by the first network administrator owned or controlled by a first business entity;

[c] *at least one index creation agent and a reporting entity resident in the first mote, said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote, said reporting entity configured to report at least a part of the created mote-addressed sensing index, a control index, or a routing/spatial index associated to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set sensing index, a control index, or a routing/spatial index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.*<sup>90</sup> (Emphasis added)

As shown following, (1) the USPTO yet to fulfill its duty to provide the broadest reasonable interpretation consistent with the specification of Independent Claim 41 by an unreasonable mapping of the claim onto the USPTO -cited material, which fails to recite several express recitations of these claims; (2) the USPTO is asserting one or more characterizations that each cited reference “teaches” at least some of the text of Independent Claim 41, but has not yet provided any objectively verifiable evidence supporting these assertions; and (3) the USPTO has not yet adduced objective evidence of how to modify/combine the cited art to match the recitations of Independent Claim 41.

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<sup>90</sup> The lettering of the clauses herein is merely for sake of clarity of argument and should not be taken to imply any particular ordering of the clauses.

**a) The USPTO Has Not Met Its Duty to Provide a Broadest Reasonable Interpretation of Independent Claim 41 Consistent with the Specification through Attempts to Map Independent Claim 41 onto USPTO-Cited Technical Material that Fails to Recite Several Express Terms of Independent Claim 41 and Therefore the USPTO Has Not Met Its Burden to Establish a *Prima Facie* Case of Unpatentability for Independent Claim 41**

Concerning this, the USPTO has recently stated as follows:

As to claim 41, Mulgund shows:

a first mote [node 2] (Fig . 1);

at least one mote-appropriate device [sensor 16] at a second mote [another node 2] (Fig . 2 and par. [0026]) ; and

at least one index creation agent (a sensor network modeling agent], said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote (Fig . 3 and par. [0037]).

Mulgund also shows that each node contains some local memory or other knowledge base for recording sensor output data, which can be retrieved by interrogating the node (par. [0030]), which suggests that there exists some agent resident in a mote that collects data from sensors and stores it in the local knowledge base, however, the local agent per se is not explicitly shown.

Madden shows:

at least one index creation agent [generic aggregation service for ad hoc networks of TinyOS motes] resident in the first mote [parent mote]. said at least one index creation agent configured to create at least one of a sensing index [group id index) associated with the second mote [child mote) [creating in-network aggregate of collected information across all groups) (section 4.2 Grouping).

*It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having said at least one index creation agent being resident in the first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).*

Office Action, pp. 16-17 (9 March 2010) (emphasis added).<sup>91</sup>

As set forth above, Independent Claim 41 recites as follows: “A system comprising: [a] a first mote administered by a first network administrator owned or controlled by a first business entity; [b] at least one mote-appropriate device at a second mote administered by the first network

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<sup>91</sup> Applicant respectfully asserts that the USPTO has apparently not examined the recitations of Applicant’s claims, but appears to have not addressed the express language of both Applicant’s claims and the cited technical material. Accordingly, Applicant respectfully maintains that the USPTO has not established a *prima facie* case of the unpatentability of any pending claim for at least this reason. Notwithstanding the foregoing, Applicant demonstrates herein that even if the USPTO had followed the MPEP examination guidelines, no *prima facie* case of unpatentability would be extant.

administrator owned or controlled by a first business entity; [c] at least one index creation agent and a reporting entity resident in the first mote, said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote, said reporting entity configured to report at least a part of the created mote-addressed sensing index, a control index, or a routing/spatial index associated to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set sensing index, a control index, or a routing/spatial index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.”<sup>92</sup>

It appears to Applicant that the USPTO has mapped “[c] at least one index creation agent [and a reporting entity] resident in the first mote, said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote” onto “*The network modeling agent builds the database model by updating relational database logical design tables at each step of the discovering step.*”. Applicant notes that the USPTO has not explained how it reaches such mappings under the framework of the broadest reasonable interpretation consistent with the specification as is the USPTO’s burden (e.g., such as by examples drawn from Applicant’s claims or detailed description),<sup>93</sup> and furthermore, Applicant points out that this mapping does not address at least the “at least one index creation agent and a reporting entity resident in the first mote, said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote, said reporting entity configured to report at least a part of the created mote-addressed sensing index, a control index, or a routing/spatial index associated to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business

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<sup>92</sup> The lettering of the clauses herein is merely for sake of clarity of argument and should not be taken to imply any particular ordering of the clauses.

<sup>93</sup> Irrespective of a desire to be cooperative, the ability of any patent practitioner to help the Examiner fulfill this burden on the record is tightly curtailed by pre- and post-issuance legal standards and by various ethical duties in tension. See, e.g., 37 C.F.R. § 10.83 (“A practitioner should represent a client zealously within the bounds of the law.”); 37 C.F.R. § 10.84 (“[A] practitioner shall not intentionally ... [p]rejudice or damage a client during the course of a professional relationship, except as required under this [ethics] part.”); and 37 C.F.R. § 10.76 (“A practitioner should represent a client competently.”). For these and other reasons, this document notes instances in which the USPTO did not follow the prescribed rules rather than seeking to interpret claims and/or to adduce evidence on the USPTO’s behalf.

entity and (ii) a second-set sensing index, a control index, or a routing/spatial index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.”

In view of the foregoing, Applicant points out that although Independent Claim 41 has been quoted in the present rejection, several claim terms have not been addressed in its analysis. Because the USPTO-cited material fails to recite at least the foregoing bolded recitations of Independent Claim 41,<sup>94</sup> under the MPEP guidelines as set forth above, such material does not establish a *prima facie* case of the unpatentability of Independent Claim 41. For these reasons, Applicant respectfully asks the USPTO to hold Independent Claim 41 allowable and to issue a Notice of Allowability of same.

**b) The USPTO is Characterizing/Asserting U.S. Pat. Application No. US 2002/0161751 (“Mulgund”) and/or “TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks” (“Madden”) to “Teach” the Text of Independent Claim 41, But Does Not Support Its Characterization/Assertion, Therefore the USPTO Has Not Met Its Burden to Establish a *Prima Facie* Case of Unpatentability for Independent Claim 41**

The USPTO has stated as follows:

As to claim 41 , Mulgund shows:

a first mote [node 2] (Fig . 1);

at least one mote-appropriate device [sensor 16] at a second mote [another node 2] (Fig . 2 and par. [0026]) ; and

at least one index creation agent (a sensor network modeling agent], said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote (Fig . 3 and par. [0037]).

Mulgund also shows that each node contains some local memory or other knowledge base for recording sensor output data, which can be retrieved by interrogating the node (par. [0030]), which suggests that there exists some agent resident in a mote that collects data from sensors and stores it in the local knowledge base, however, the local agent per se is not explicitly shown.

Madden shows:

at least one index creation agent [generic aggregation service for ad hoc networks of TinyOS motes] resident in the first mote [parent mote]. said at least one index creation agent configured to create at least one of a sensing index [group id index) associated with

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<sup>94</sup> Although Independent Claim 41 has been quoted in the present rejection, several claim terms have not been addressed in its analysis, as shown below.

the second mote [child mote) [creating in-network aggregate of collected information across all groups) (section 4.2 Grouping).

*It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having said at least one index creation agent being resident in the first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).*

Office Action, pp. 16-17 (9 March 2010) (emphasis added). Applicant respectfully disagrees and traverses the rejection.

**(1) The USPTO Has Put Forth No Evidence Supporting Its Characterization/Assertion That Mulgund “Teaches” Recitations of Independent Claim 41**

Applicant respectfully points out that Applicant has reviewed those portions of the Mulgund reference identified by the USPTO, and so far as Applicant can discern, the Mulgund reference does not recite “at least one index creation agent and a reporting entity resident in the first mote, said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote, said reporting entity configured to report at least a part of the created mote-addressed sensing index, a control index, or a routing/spatial index associated to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set sensing index, a control index, or a routing/spatial index from a second set of motes administered by a second network administrator owned or controlled by a second business entity” as recited in Applicant's Independent Claim 41.<sup>95</sup> Rather, the textual portions of Mulgund cited by the USPTO actually recite as follows:

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<sup>95</sup> Nor does Mulgund recite as the USPTO alleges, for that matter; Applicant again points out that, in derogation of the MPEP guidelines, the USPTO has not addressed the language of Applicant's Independent Claim 41.



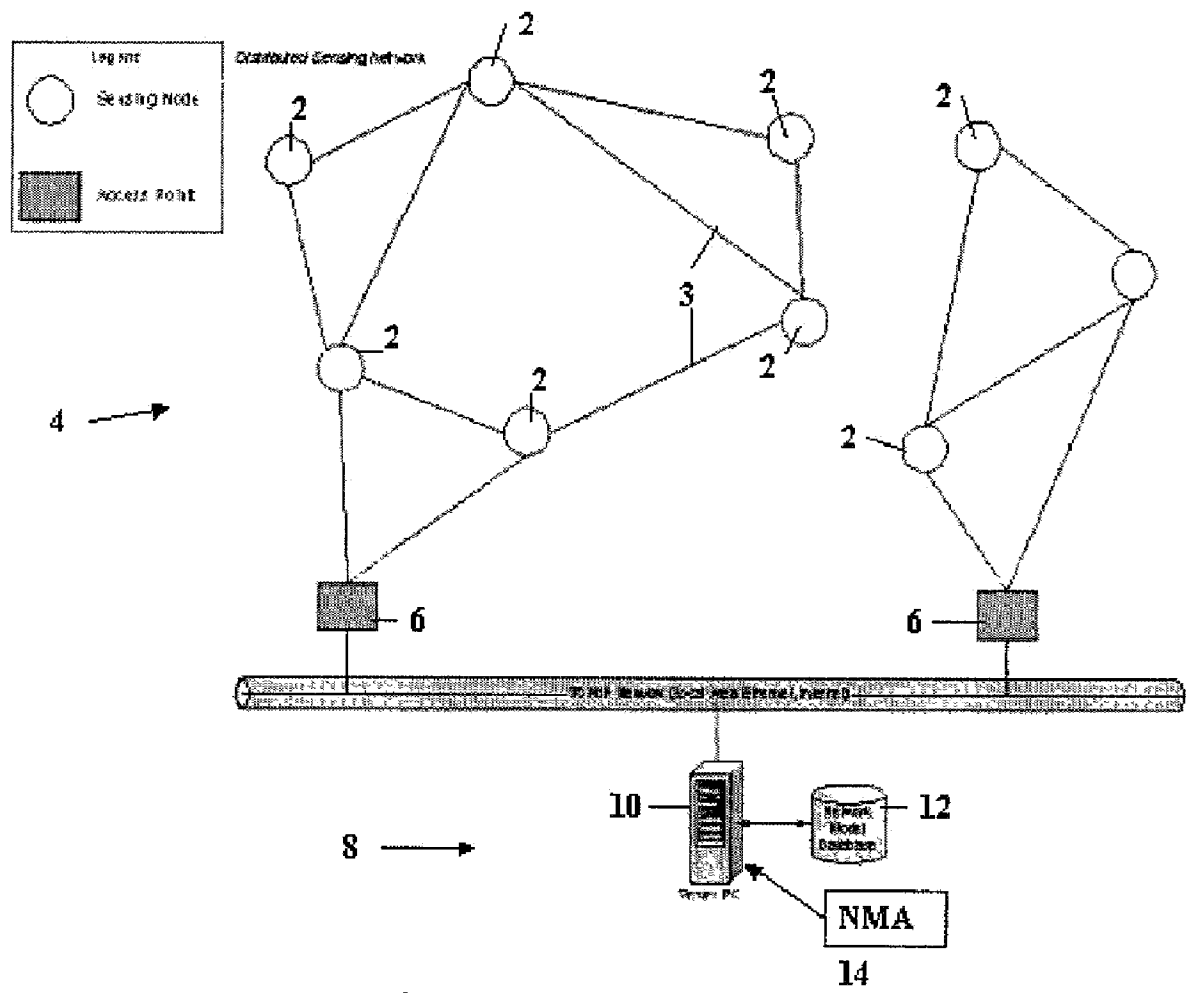


Figure 1

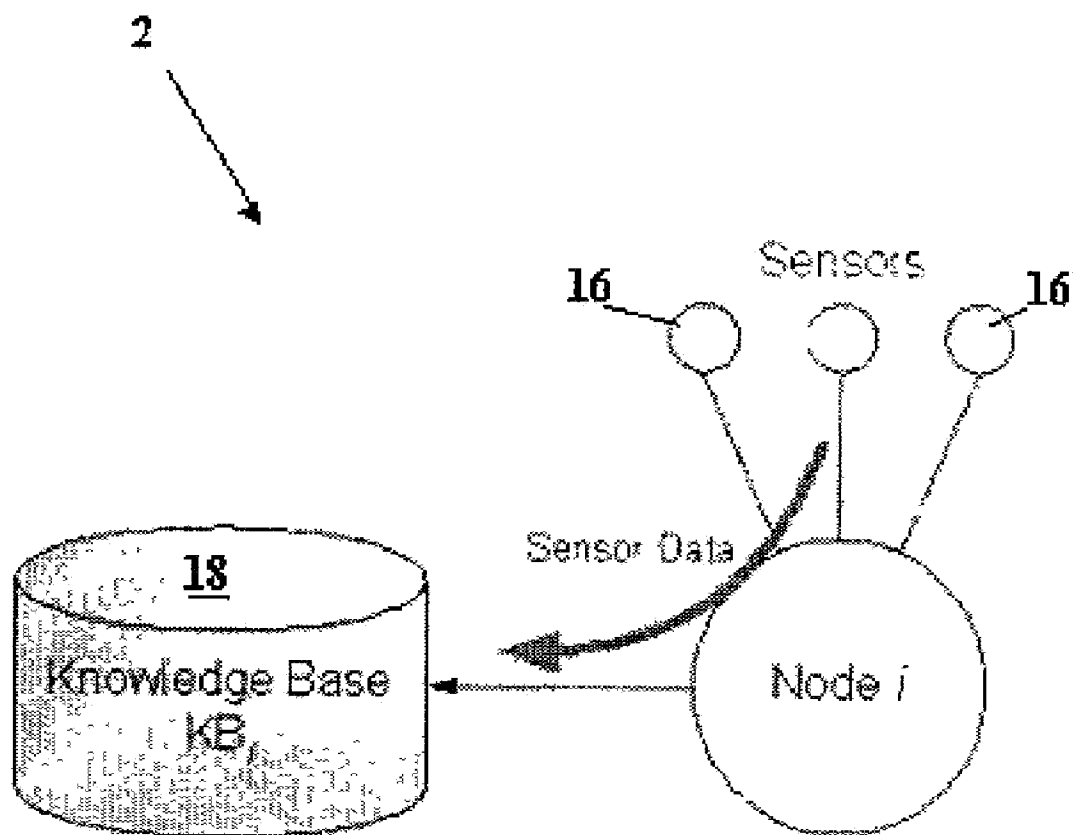


Figure 2

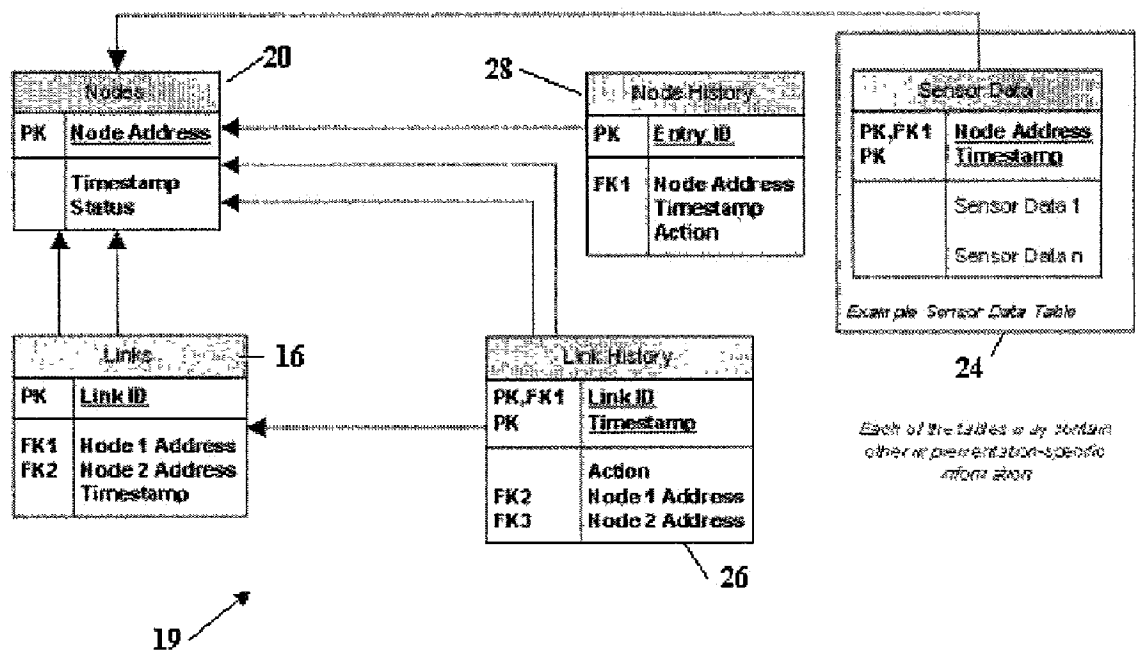


Figure 3

[0026] **FIG. 2** illustrates the nature of each of the sensing nodes **2**, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors **16** providing high-value information connected to it. The term sensor is used here in a general sense. A sensor **16** as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors **16** is stored locally in a well-defined knowledge base **18**, but the output can be accessed from outside the network **4** through some software application programming interface (API) and hardware implementation. Each of the sensing nodes **2** is additionally in communication with one or more other sensing nodes through connecting links **3**.

[0030] each node contains some local memory or other knowledge base **18** for recording sensor output data, which can be retrieved by interrogating the node;

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

Mulgund at paragraphs 26, 30 and 37, Figs. 1 - 3.

The USPTO is characterizing Mulgund to “teach” at least some of the text of Independent Claim 41, but does not support its characterization with objectively verifiable evidence. The USPTO has therefore not met its burden to establish a *prima facie* case of unpatentability for Independent Claim 41. What a reference “teaches” is a question of fact.<sup>96,97,98</sup> Conclusory statements that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective

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<sup>96</sup> See *Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) (“What a reference **teaches** is a question of fact... Therefore, we review the Board's **characterization of the disclosure** in the FPR Publication for **substantial evidence**.”) (emphasis added).

<sup>97</sup> *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing the PTO and holding when the PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”)

<sup>98</sup> Anticipation, as well as what a reference teaches, is a question of fact. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1323 (Fed. Cir. 2002).

evidence. *See In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009);<sup>99</sup> *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002);<sup>100</sup> *In re Kotzab*, 417 F.3d 1365, 1369 (Fed. Cir. 2000) (“Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. ... Broad conclusory statements standing alone are not “evidence.”).<sup>101</sup> Even if the

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<sup>99</sup> In *McNeil*, the Examiner had rejected claims reciting a tampon having “a generally cylindrical compressed, solid fibre core” and ribs “compressed less than the fiber core” in view of a Japanese patent application (“Sasaki”). McNeil appealed to the Board of Patent Appeals and Interferences, which “specifically found that ‘Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward.’” *See id.*, 2008-1546, slip op. 1, 3 (Fed. Cir. July 31, 2009). In light of this and its finding that of each rib of Sasaki being “compressed less than the fiber core,” the Board affirmed the rejections. Insofar that the Sasaki reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its statement that “Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward,” the Federal Circuit reversed the rejection for lack of “substantial evidentiary support,” stating as follows:

There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs “compressed less than the fiber core” or “a generally cylindrical compressed, solid fibre core.” ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions. ... Lastly, turning to the issue of spacing of the ribs, Figure 8 shows a space between the bottommost ribs, and there is arguably some space shown between other ribs. However, because it is neither clear that Sasaki discloses a core nor which portions of Sasaki's tampon the Board considered to be the ribs and which the Board considered to be the core, we cannot say that substantial evidence supports the Board's determination that Sasaki discloses ribs separated from each other “at the proximal end by an amount greater than” than at “the distal end.”

*See id.*, 2008-1546, slip op. 1, 10-11 (Fed. Cir. July 31, 2009).

<sup>100</sup> In *Lee*, the USPTO argued that, to the “common sense of a person of ordinary skill in the art,” it was obvious that one could combine a prior patent for an on-screen television menu with an on-screen picture-quality adjustment for a video game played on a television illustrated in the game’s handbook. The Federal Circuit ruled that obviousness must be based on “objective evidence of record.” Finding no specific published suggestion in the record, the Federal Circuit ruled the invention patentable. *See id.*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (describing the BPAI’s obligation to develop an evidentiary basis for its factual findings to allow for meaningful judicial review under the substantial evidence standard).

<sup>101</sup> In *Kotzab*, the Federal Circuit reversed the BPAI as follows:

The Examiner cites Evans for teaching that “one *system* constructed and operated according to the invention may be used to control a number of valves.” Evans application, p. 19, ll. 6-8 (emphasis added). In view of this disclosure only, the Examiner concluded that Evans teaches the use of one *sensor* to control a number of valves. This conclusion must necessarily rest on the unstated premise by the Examiner that “one system” is equal to “one sensor.”

But the Board’s decision, adopting the Examiner’s premise, lacks the necessary substantial evidence to support a rejection of Kotzab’s claims. Specifically, there is not substantial evidence to show that “one system” is the same thing as “one sensor.” The words “sensor” and “probe” are used throughout Evans to refer to the device that measures the mold temperature. ... Evans clearly never uses the term “system” as a substitute for the simple temperature measuring device it calls “sensor.” And, the Board made no reference to any evidence in the record that would equate “one system” with “one sensor.”

PTO personnel were to seek to support their characterizations with an expert witness affidavit, the law is that conclusory statements by an expert that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective documentary evidence.<sup>102</sup> Thus, when a party to a matter asserts that a reference “teaches” something beyond its bare recitations/direct disclosure, and that factual assertion is challenged by an opposite party, the law requires that the asserting party provide objective evidentiary support to “close the gap” between what the reference recites and the what the asserting party *alleges* the reference teaches; in the absence of such evidence, there should be no finding of fact in favor of the asserted teaching.<sup>103,104,105,106</sup> For each instance below in which

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As mentioned previously, more than a mere scintilla of evidence is necessary to support the Board's implicit conclusion that “one system” is equal to “one sensor.” Based on the entirety of Evans’ disclosure, we cannot say that there is such relevant evidence as a reasonable mind might accept as adequate to support the conclusion that “one system” means “one sensor.”

*See id.*, 417 F.3d 1365, 1370-71 (Fed. Cir. 2000) (underline added).

<sup>102</sup> *See Motorola, Inc. v. Interdigital Tech. Corp.*, 141 F.3d 1461, 1473 (Fed. Cir. 1997) (“The district court's holding misapprehends the rigors of anticipation. For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art... **Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there. An expert's conclusory testimony, unsupported by the documentary evidence, cannot supplant the requirement of anticipatory disclosure in the prior art reference itself.**”) (emphasis added); *see also Genzyme Corp. v. Atrium Med. Corp.*, 315 F. Supp. 2d 552, 563 (D. Del. 2004) (“For a patent to be anticipated, every element of a patent claim must appear in a single reference. **Other references and opinion may be used to reveal what the reference would have meant to those skilled in the art at the time of the invention.... For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. Presumed knowledge of one skilled in the art does not allow an expert to read into the reference elements that are not there.**”) (emphasis added)

<sup>103</sup> *See Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) . In *Rapoport*, the Federal Circuit affirmed the Board’s holding that a publication did not anticipate a claim, reasoning as follows (emphasis added):

Having construed the disputed term in the interference count and affirmed the Board's interpretation, we can properly address the merits of Rapoport's anticipation argument. The Board found that the disclosure of the FPR Publication was limited to treatment of anxiety in patients suffering from sleep apnea with buspirone, and did not address treatment of the underlying sleep apnea disorder. What a reference **teaches** is a question of fact.... There is no disclosure in the FPR Publication of tests in which buspirone is administered to patients suffering from sleep apnea with the intent to cure the underlying condition.... The Board also correctly found that the FPR Publication does not show administering buspirone in any specific amounts to patients suffering from sleep apnea.... We note that there is no mention in the FRP Publication of administering buspirone to a patient at bedtime.... Therefore, for all the reasons stated above, we find that the Board's conclusion that the FPR Publication does not disclose administration of buspirone to patients suffering from sleep apnea to treat sleep apnea is supported by substantial evidence.

<sup>104</sup> *See In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing PTO and holding, when PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”).

the USPTO has made an unsupported characterization, Applicant accordingly requests that the USPTO either (1) withdraw the corresponding claim rejection or (2) provide an affidavit setting forth objectively verifiable evidence sufficient to “close the gap” between the characterization and what the reference actually recites.

As can be seen from the foregoing, for example, the USPTO-identified portions of Mulgund do not recite the text of at least Clause [c] of Independent Claim 41: “at least one index creation agent and a reporting entity resident in the first mote, said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote, said reporting entity configured to report at least a part of the created mote-addressed sensing index, a control index, or a routing/spatial index associated to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set sensing index, a control index, or a routing/spatial index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.”<sup>107</sup> Instead, Mulgund indicates “The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active.”

Applicant has shown by direct quotations that Independent Claim 41 and the Mulgund reference are very different on their faces. *See supra* at p. 81 (quotation of Claim 41); and at p. 86 *et seq.* (quotation of Mulgund). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the USPTO-cited art is very different from Claim 41, and Applicant has noted that the USPTO has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 41 either under the MPEP or under controlling legal standards. *See supra* at pp. 20–43.

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<sup>105</sup> *See In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009).

<sup>106</sup> *See In re Kotzab*, 417 F.3d 1365, 1369 (Fed. Cir. 2000).

<sup>107</sup> Neither do the USPTO-identified portions of Mulgund recite “circuitry for receiving, at [the] first node, provenance data including at least a handle relating to a first software program active on [the] second node,” as recited in Clause [a].



Accordingly, insofar as that Mulgund does not recite the text of at least Clauses [a], [b] and [c] of Applicant's Independent Claim 41, and insofar as that the USPTO has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Mulgund could be modified/combined to teach at least Clauses [a], [b] and [c] of Independent Claim 41, Applicant respectfully points out that under the MPEP guidelines as set forth above, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 41 for at least these reasons. Thus, Applicant respectfully asks the USPTO to hold Independent Claim 41 allowable and to issue a Notice of Allowability of same.

With respect to the USPTO assertions regarding the teachings of Mulgund, Applicant demonstrated above that the express recitations of Mulgund are not as the USPTO alleges, and that the USPTO has provided no evidence—to support the USPTO assertions as to the factual conclusion as to what Mulgund “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, the USPTO has presented no evidence that Mulgund teaches as asserted by the USPTO. In addition, Applicant respectfully points out that even if the USPTO's assertions regarding the teachings of Mulgund were supported, such would be of no moment in that the USPTO has yet to connect the alleged teaching of Mulgund to the actual express language of Applicant's Independent Claim 41. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that the USPTO hold Independent Claim 41 allowable and issue a Notice of Allowability of same.

**(2) The USPTO Has Put Forth No Evidence  
Supporting Its Characterization/Assertion That  
Madden “Teaches” Recitations of Independent  
Claim 41**

As noted above, the USPTO has stated as follows:

As to claim 41, Mulgund shows:  
a first mote [node 2] (Fig. 1);  
at least one mote-appropriate device [sensor 16] at a second mote [another node 2] (Fig. 2 and par. [0026]); and  
at least one index creation agent (a sensor network modeling agent), said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote (Fig. 3 and par. [0037]).

Mulgund also shows that each node contains some local memory or other knowledge base for recording sensor output data, which can be retrieved by interrogating the node (par. [0030]), which suggests that there exists some agent resident in a mote that collects data from sensors and stores it in the local knowledge base, however, the local agent per se is not explicitly shown.

Madden shows:

at least one index creation agent [generic aggregation service for ad hoc networks of TinyOS motes] resident in the first mote [parent mote]. said at least one index creation agent configured to create at least one of a sensing index [group id index] associated with the second mote [child mote] [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping).

*It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having said at least one index creation agent being resident in the first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).*

Office Action, pp. 16-17 (9 March 2010) (emphasis added).

Applicant has pointed out above that the USPTO has not engaged in the framework of the broadest reasonable interpretation consistent with the specification regarding Clauses [c], and accordingly has not yet addressed at least the “at least one index creation agent and a reporting entity resident in the first mote, said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote, said reporting entity configured to report at least a part of the created mote-addressed sensing index, a control index, or a routing/spatial index associated to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set sensing index, a control index, or a routing/spatial index from a second set of motes administered by a second network administrator owned or controlled by a second business entity” recitations of Clause [c]. Accordingly, until the USPTO has supported its statement under the framework of the broadest reasonable interpretation consistent with the specification Applicant here returns to the express language of the claim and thus respectfully points out that Applicant has reviewed those portions of the Madden reference identified by the USPTO, and so far as Applicant can discern, the Madden reference does not recite “at least one index creation agent and a reporting entity resident in the first mote, said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote, said reporting entity configured to report at least a part of the created mote-addressed sensing

index, a control index, or a routing/spatial index associated to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set sensing index, a control index, or a routing/spatial index from a second set of motes administered by a second network administrator owned or controlled by a second business entity” as recited in Applicant's Independent Claim 41. Rather, the textual portions of Madden cited by the USPTO actually recite as follows:

#### 4.2 Grouping

Grouping in TAG is functionally equivalent to the GROUP BY clause in SQL: each sensor reading is placed into exactly one group, and groups are partitioned according to an expression over one or more attributes. The basic grouping technique is to push the expression down with the query, ask nodes to choose the group they belong to, and then, as answers flow back, update aggregate values in the appropriate groups.

Partial state records are aggregated just as in the approach described above, except that those records are now tagged with a group id. When a node is a leaf, it applies the grouping expression to compute a group id. It then tags its partial state record with the group and forwards it on to its parent. When a node receives an aggregate from a child, it checks the group id. If the child is in the same group as the node, it combines the two values using the combining function. If it is in a different group, it stores the value of the child's group along with its own value for forwarding in the next epoch. If another child message arrives with a value in either group, the node updates the appropriate aggregate. During the next epoch, the node sends the value of all the groups about which it collected information during the previous epoch, combining information about multiple groups into a single message as long as message size permits.

Figure 2 shows an example of computing a query grouped by temperature that selects average light readings. Recall that queries may contain a HAVING clause, which constrains the set of groups in the final query result. This predicate can sometimes be passed into the network along with the grouping expression. The predicate is only sent if it can potentially be used to reduce the number of messages that must be sent: for example, if the predicate is of the form  $\text{MAX}(\text{attr}) > x$ , then information about groups with  $\text{MAX}(\text{attr}) < x$  need not be transmitted up the tree, and so the predicate is sent down into the network.

When a node detects that a group does not satisfy a HAVING clause, it can notify other nodes in the network of this information to suppress transmission and storage of values from that group. Note that HAVING clauses can be pushed down only for monotonic aggregates; nonmonotonic aggregates are not amenable to this technique.

However, not all HAVING predicates on monotonic aggregates can be pushed down; for example,  $\text{MAX}(\text{attr}) > x$  cannot be applied in the network because a node

cannot know that, just because its local value of *attr* is less than, the *x*, MAX over the entire group is less than. Grouping introduces an additional problem: the number of groups can exceed available storage on any one (nonleaf) device. Our proposed solution is to evict one or more groups from local storage. Once an eviction victim is selected, it is forwarded to the node's parent, which may choose to hold on to the group or continue to forward it up the tree. Notice that a single node may evict several groups in a single epoch (or the same group multiple times, if a bad victim is selected). This is because, once group storage is full, if only one group is evicted at a time, a new eviction decision must be made every time a value representing an unknown or previously evicted group arrives.

Because groups can be evicted, the base station at the top of the network may be called upon to combine partial groups to form an accurate aggregate value. Evicting partially computed groups is known as partial preaggregation, as described in [15].

Thus, we have shown how to partition sensor readings into a number of groups and properly compute aggregates over those groups, even when the amount of group information exceeds available storage in any one device. We will briefly mention experiments with grouping and group eviction policies in Section 5.2. First, we summarize some of the additional benefits of TAG.

Madden at section 4.2 (emphasis added).

Additionally, the USPTO is characterizing Madden to “teach” at least some of the text of Independent Claim 41, but does not support its characterization with objectively verifiable evidence, therefore the USPTO has not met its burden to establish a *prima facie* case of unpatentability for Independent Claim 41. What a reference “teaches” is a question of fact.<sup>108,109,110</sup> Conclusory statements that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective evidence. *See In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009),<sup>111</sup>

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<sup>108</sup> *See Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) (“What a reference **teaches** is a question of fact... Therefore, we review the Board's **characterization of the disclosure** in the FPR Publication for **substantial evidence**.”) (emphasis added).

<sup>109</sup> *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing the PTO and holding when the PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”)

<sup>110</sup> Anticipation, as well as what a reference teaches, is a question of fact. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1323 (Fed. Cir. 2002).

<sup>111</sup> In *McNeil*, the Examiner had rejected claims reciting a tampon having “a generally cylindrical compressed, solid fibre core” and ribs “compressed less than the fiber core” in view of a Japanese patent application (“Sasaki”). McNeil appealed to the Board of Patent Appeals and Interferences, which “specifically found that ‘Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward.’” *See id.*, 2008-1546, slip op. 1,

*In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002);<sup>112</sup> *In re Kotzab*, 417 F.3d 1365, 1369 (Fed. Cir. 2000) (“Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. ... Broad conclusory statements standing alone are not “evidence.”).<sup>113</sup>

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3 (Fed. Cir. July 31, 2009). In light of this and its finding that of each rib of Sasaki being “compressed less than the fiber core,” the Board affirmed the rejections. Insofar that the Sasaki reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its statement that “Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward,” the Federal Circuit reversed the rejection for lack of “substantial evidentiary support,” stating as follows:

There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs “compressed less than the fiber core” or “a generally cylindrical compressed, solid fibre core.” ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions. ... Lastly, turning to the issue of spacing of the ribs, Figure 8 shows a space between the bottommost ribs, and there is arguably some space shown between other ribs. However, because it is neither clear that Sasaki discloses a core nor which portions of Sasaki's tampon the Board considered to be the ribs and which the Board considered to be the core, we cannot say that substantial evidence supports the Board's determination that Sasaki discloses ribs separated from each other “at the proximal end by an amount greater than” than at “the distal end.”

*See id.*, 2008-1546, slip op. 1, 10-11 (Fed. Cir. July 31, 2009).

<sup>112</sup> In *Lee*, the USPTO argued that, to the “common sense of a person of ordinary skill in the art,” it was obvious that one could combine a prior patent for an on-screen television menu with an on-screen picture-quality adjustment for a video game played on a television illustrated in the game’s handbook. The Federal Circuit ruled that obviousness must be based on “objective evidence of record.” Finding no specific published suggestion in the record, the Federal Circuit ruled the invention patentable. *See id.*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (describing the BPAI’s obligation to develop an evidentiary basis for its factual findings to allow for meaningful judicial review under the substantial evidence standard).

<sup>113</sup> In *Kotzab*, the Federal Circuit reversed the BPAI as follows:

The Examiner cites Evans for teaching that “one *system* constructed and operated according to the invention may be used to control a number of valves.” Evans application, p. 19, ll. 6-8 (emphasis added). In view of this disclosure only, the Examiner concluded that Evans teaches the use of one *sensor* to control a number of valves. This conclusion must necessarily rest on the unstated premise by the Examiner that “one system” is equal to “one sensor.”

But the Board's decision, adopting the Examiner's premise, lacks the necessary substantial evidence to support a rejection of Kotzab’s claims. Specifically, there is not substantial evidence to show that “one system” is the same thing as “one sensor.” The words “sensor” and “probe” are used throughout Evans to refer to the device that measures the mold temperature. ... Evans clearly never uses the term “system” as a substitute for the simple temperature measuring device it calls “sensor.” And, the Board made no reference to any evidence in the record that would equate “one system” with “one sensor.”

As mentioned previously, more than a mere scintilla of evidence is necessary to support the Board's implicit conclusion that “one system” is equal to “one sensor.” Based on the entirety of Evans’ disclosure, we cannot say that there is such relevant evidence as a reasonable mind might accept as adequate to support the conclusion that “one system” means “one sensor.”

*See id.*, 417 F.3d 1365, 1370-71 (Fed. Cir. 2000) (underline added).

Even if the PTO personnel were to seek to support their characterizations with an expert witness affidavit, the law is that conclusory statements by an expert that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective documentary evidence.<sup>114</sup> Thus, when a party to a matter asserts that a reference “teaches” something beyond its bare recitations/direct disclosure, and that factual assertion is challenged by an opposite party, the law requires that the asserting party provide objective evidentiary support to “close the gap” between what the reference recites and the what the asserting party *alleges* the reference teaches; in the absence of such evidence, there should be no finding of fact in favor of the asserted teaching.<sup>115,116,117,118</sup> For each instance below in which the USPTO has made an unsupported characterization, Applicant accordingly

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<sup>114</sup> See *Motorola, Inc. v. Interdigital Tech. Corp.*, 141 F.3d 1461, 1473 (Fed. Cir. 1997) (“The district court’s holding misapprehends the rigors of anticipation. For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art... **Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there. An expert’s conclusory testimony, unsupported by the documentary evidence, cannot supplant the requirement of anticipatory disclosure in the prior art reference itself.**”) (emphasis added); see also *Genzyme Corp. v. Atrium Med. Corp.*, 315 F. Supp. 2d 552, 563 (D. Del. 2004) (“For a patent to be anticipated, every element of a patent claim must appear in a single reference. **Other references and opinion may be used to reveal what the reference would have meant to those skilled in the art at the time of the invention.... For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. Presumed knowledge of one skilled in the art does not allow an expert to read into the reference elements that are not there.**”) (emphasis added)

<sup>115</sup> See *Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) . In *Rapoport*, the Federal Circuit affirmed the Board’s holding that a publication did not anticipate a claim, reasoning as follows (emphasis added):

Having construed the disputed term in the interference count and affirmed the Board’s interpretation, we can properly address the merits of Rapoport’s anticipation argument. The Board found that the disclosure of the FPR Publication was limited to treatment of anxiety in patients suffering from sleep apnea with buspirone, and did not address treatment of the underlying sleep apnea disorder. What a reference **teaches** is a question of fact.... There is no disclosure in the FPR Publication of tests in which buspirone is administered to patients suffering from sleep apnea with the intent to cure the underlying condition.... The Board also correctly found that the FPR Publication does not show administering buspirone in any specific amounts to patients suffering from sleep apnea.... We note that there is no mention in the FRP Publication of administering buspirone to a patient at bedtime.... Therefore, for all the reasons stated above, we find that the Board’s conclusion that the FPR Publication does not disclose administration of buspirone to patients suffering from sleep apnea to treat sleep apnea is supported by substantial evidence.

<sup>116</sup> See *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing PTO and holding, when PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”).

<sup>117</sup> See *In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009).

<sup>118</sup> See *In re Kotzab*, 417 F.3d 1365, 1369 (Fed. Cir. 2000).

requests that the USPTO either (1) withdraw the corresponding claim rejection or (2) provide an affidavit setting forth objectively verifiable evidence sufficient to “close the gap” between the characterization and what the reference actually recites.

As can be seen from the foregoing, for example, the USPTO-identified portions of Madden do not recite the text of at least Clause [c] of Independent Claim 41: “at least one index creation agent and a reporting entity resident in the first mote, said at least one index creation agent configured to create at least one of a sensing index, a control index, or a routing/spatial index associated with the second mote, said reporting entity configured to report at least a part of the created mote-addressed sensing index, a control index, or a routing/spatial index associated to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set sensing index, a control index, or a routing/spatial index from a second set of motes administered by a second network administrator owned or controlled by a second business entity” Instead, Madden recites “Grouping in TAG is functionally equivalent to the GROUP BY clause in SQL: each sensor reading is placed into exactly one group, and groups are partitioned according to an expression over one or more attributes. The basic grouping technique is to push the expression down with the query, ask nodes to choose the group they belong to, and then, as answers flow back, update aggregate values in the appropriate groups.” (Madden Section 4.2 Grouping).” Consequently, on its face, Madden does not show the text of at least Clause [c] of Independent Claim 41.

Applicant has shown by direct quotations that Independent Claim 41 and the Madden reference are very different on their faces. *See supra* at p. 81 (quotation of Claim 41); and at p. 96 *et seq.* (quotation of Madden). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the USPTO-cited art is very different from Claim 41, and Applicant has noted that the USPTO has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 41 either under the MPEP or under controlling legal standards. *See supra* at pp. 20–43.

Accordingly, insofar as that Madden does not recite the text of at least Clauses [a], [b] and [c] of Applicant’s Independent Claim 41, and insofar as that the USPTO has provided no

objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Madden could be modified/combined to teach at least Clauses [a], [b] and [c] of Independent Claim 41, Applicant respectfully points out that under the MPEP guidelines as set forth above, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 41 for at least these reasons. Thus, Applicant respectfully asks the USPTO to hold Independent Claim 41 allowable and to issue a Notice of Allowability of same.

With respect to the USPTO assertions regarding the teachings of Madden, Applicant demonstrated above that the express recitations of Madden are not as the USPTO alleges, and that the USPTO has provided no evidence—let alone the preponderance of the evidence required—to support the USPTO assertions as to the factual conclusion as to what Madden “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, the USPTO has presented no evidence that Madden teaches as asserted by the USPTO. In addition, Applicant respectfully points out that even if the USPTO’s assertions regarding the teachings of Madden were supported, such would be of no moment in that the USPTO has yet to connect the alleged teaching of Madden to the actual express language of Applicant’s Independent Claim 41. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that the USPTO hold Independent Claim 41 allowable and issue a Notice of Allowability of same.

**c) The USPTO-Suggested Modifications/Combinations to Meet the Recitations of Independent Claim 41 Are a “Mere Conclusory Statement” Without Evidentiary Support/Change the Principle of Operation of Components of Cited References/Render Such Components Unfit for Intended Purpose; No Teaching to Combine/Modify Components as a Matter of Law.**

In addition and/or in the alternative to the foregoing, Applicant additionally points out that, not only has the USPTO yet to adduce any objectively verifiable evidence sufficient to support the USPTO assertions regarding alleged teaching to modify/combine Mulgund and/or Madden to meet the recitations of amended Independent Claim 1, there can be no such teaching



as a matter of law. Specifically, shown following is that (1) any USPTO assertion regarding a teaching to modify/combine the technologies of Mulgund with the technologies of Madden would appear to be based on conclusory statement(s) without evidentiary support.

## **2. Dependent Claims 42 and 44 Patentable for at Least Reasons of Dependency from Independent Claim 41**

Claims 42 and 44<sup>119</sup> depend either directly or indirectly from Independent Claim 41. “A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.” *See* 35 U.S.C. § 112 paragraph 4. Consequently, Dependent Claims 42 and 44 are patentable for at least the reasons why Independent Claim 41 is patentable. Accordingly, Applicant respectfully requests that the USPTO hold Dependent Claims 42 and 44 patentable for at least the foregoing reasons, and issue a Notice of Allowability on same.

### **E. Technical Material Cited by the USPTO Does Not Show/Suggest Recitations of Independent Claim 45 as Presented Herein; Notice of Allowance of Same Respectfully Requested**

#### **1. Independent Claim 45**

Independent Claim 45 recites as follows:

45. A system comprising:

[a] a first mote administered by a first network administrator owned or controlled by a first business entity;

[b] at least one mote-appropriate device at a second mote administered by the first network administrator owned or controlled by a first business entity; and

[c] **a mote-addressed content index at the first mote having at least one of a sensing function, a control function, or routing/spatial information of said at least one mote-appropriate device at the second mote, said a mote-addressed content index agent at the first mote configured to be reported to an aggregator of (i) a first-set content index from the first and second of motes administered by the first**

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<sup>119</sup> In relation to these dependent claims, the USPTO has provided no objectively verifiable evidence, nor argument based on objectively verifiable evidence, in support of its assertions regarding what the USPTO-cited material “discloses.” Insofar as this alleged disclosure is not literally recited in such material, Applicant respectfully asserts that the Examiner must have relied on “personal knowledge” or taken improper “official notice” of one or more factors to reach each of these assertions. Applicant accordingly requests an appropriate affidavit or declaration in support of any of these rejections that are to be maintained, including any considerations purported to reflect what is “well known in the art.” *See, e.g.*, 37 C.F.R. 1.104(d)(2).

**network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of notes administered by a second network administrator owned or controlled by a second business entity.**<sup>120</sup> (Emphasis added)

As shown following, (1) the USPTO yet to fulfill its duty to provide the broadest reasonable interpretation consistent with the specification of Independent Claim 45 by an unreasonable mapping of the claim onto the USPTO -cited material, which fails to recite several express recitations of these claims; (2) the USPTO is asserting one or more characterizations that each cited reference “teaches” at least some of the text of Independent Claim 45, but has not yet provided any objectively verifiable evidence supporting these assertions; and (3) the USPTO has not yet adduced objective evidence of how to modify/combine the cited art to match the recitations of Independent Claim 45.

**a) The USPTO Has Not Met Its Duty to Provide a Broadest Reasonable Interpretation of Independent Claim 45 Consistent with the Specification through Attempts to Map Independent Claim 45 onto USPTO-Cited Technical Material that Fails to Recite Several Express Terms of Independent Claim 45 and Therefore the USPTO Has Not Met Its Burden to Establish a *Prima Facie* Case of Unpatentability for Independent Claim 45**

Concerning this, the USPTO has recently stated as follows:

As to claim 45, Mulgund shows:

- a first mote [node 2] (Fig. 1);
- at least one mote-appropriate device [sensor 16] at a second mote [another node 2] (Fig. 2 and par. [0026]); and
- a mote-addressed content index having at least a sensing function of said at least one mote-appropriate device at the second mote (Fig. 3 par. [0037]).

Mulgund does not show that said mote-addressed content index is at the first mote.

Madden shows:

- a mote-addressed content index at the first mote [parent mote] having at least a sensing function [group id] of said at least one mote-appropriate device at the second mote [child mote] [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping).

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<sup>120</sup> The lettering of the clauses herein is merely for sake of clarity of argument and should not be taken to imply any particular ordering of the clauses.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having said mote-addressed content index being at the first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).

Office Action, pp. 17-18 (9 March 2010) (emphasis added).<sup>121</sup>

As set forth above, Independent Claim 45 recites as follows:

“A system comprising

[a] a first mote administered by a first network administrator owned or controlled by a first business entity;

[b] at least one mote-appropriate device at a second mote administered by the first network administrator owned or controlled by a first business entity; and

[c] a mote-addressed content index at the first mote having at least one of a sensing function, a control function, or routing/spatial information of said at least one mote-appropriate device at the second mote, said a mote-addressed content index agent at the first mote configured to be reported to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.”<sup>122</sup>

It appears to Applicant that the USPTO has mapped “[c] a mote-addressed content index at the first mote having at least one of a sensing function, a control function, or routing/spatial information of said at least one mote-appropriate device at the second mote,” onto “*The network modeling agent builds the database model by updating relational database logical design tables at each step of the discovering step.*”. Applicant notes that the USPTO has not explained how it reaches such mappings under the framework of the broadest reasonable interpretation consistent with the specification as is the USPTO’s burden (e.g., such as by examples drawn from Applicant’s claims or detailed description),<sup>123</sup> and furthermore, Applicant points out that this

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<sup>121</sup> Applicant respectfully asserts that the USPTO has apparently not examined the recitations of Applicant’s claims, but appears to have not addressed the express language of both Applicant’s claims and the cited technical material. Accordingly, Applicant respectfully maintains that the USPTO has not established a *prima facie* case of the unpatentability of any pending claim for at least this reason. Notwithstanding the foregoing, Applicant demonstrates herein that even if the USPTO had followed the MPEP examination guidelines, no *prima facie* case of unpatentability would be extant.

<sup>122</sup> The lettering of the clauses herein is merely for sake of clarity of argument and should not be taken to imply any particular ordering of the clauses.

<sup>123</sup> Irrespective of a desire to be cooperative, the ability of any patent practitioner to help the Examiner fulfill this burden on the record is tightly curtailed by pre- and post-issuance legal standards and by various ethical duties in tension. See, e.g., 37 C.F.R. § 10.83 (“A practitioner should represent a client zealously within the bounds of the law.”); 37 C.F.R. § 10.84 (“[A] practitioner shall not intentionally ... [p]rejudice or damage a client during the

mapping does not address at least the “said a mote-addressed content index agent at the first mote configured to be reported to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.”

In view of the foregoing, Applicant points out that although Independent Claim 45 has been quoted in the present rejection, several claim terms have not been addressed in its analysis. Because the USPTO-cited material fails to recite at least the foregoing bolded recitations of Independent Claim 45,<sup>124</sup> under the MPEP guidelines as set forth above, such material does not establish a *prima facie* case of the unpatentability of Independent Claim 45. For these reasons, Applicant respectfully asks the USPTO to hold Independent Claim 45 allowable and to issue a Notice of Allowability of same.

**b) The USPTO is Characterizing/Asserting U.S. Pat. Application No. US 2002/0161751 (“Mulgund”) and/or “TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks” (“Madden”) to “Teach” the Text of Independent Claim 45, But Does Not Support Its Characterization/Assertion, Therefore the USPTO Has Not Met Its Burden to Establish a *Prima Facie* Case of Unpatentability for Independent Claim 45**

The USPTO has stated as follows:

As to claim 45, Mulgund shows:

a first mote [node 2] (Fig. 1);  
at least one mote-appropriate device [sensor 16] at a second mote [another node 2] (Fig. 2 and par. [0026]); and  
a mote-addressed content index having at least a sensing function of said at least one mote-appropriate device at the second mote (Fig. 3 par. [0037]).  
Mulgund does not show that said mote-addressed content index is at the first mote.

Madden shows:

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course of a professional relationship, except as required under this [ethics] part.”); and 37 C.F.R. § 10.76 (“A practitioner should represent a client competently.”). For these and other reasons, this document notes instances in which the USPTO did not follow the prescribed rules rather than seeking to interpret claims and/or to adduce evidence on the USPTO’s behalf.

<sup>124</sup> Although Independent Claim 45 has been quoted in the present rejection, several claim terms have not been addressed in its analysis, as shown below.

a mote-addressed content index at the first mote [parent mote] having at least a sensing function [group id] of said at least one mote-appropriate device at the second mote [child mote] [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping).

*It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having said mote-addressed content index being at the first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).*

Office Action, pp. 17-18 (9 March 2010) (emphasis added). Applicant respectfully disagrees and traverses the rejection.

**(1) The USPTO Has Put Forth No Evidence Supporting Its Characterization/Assertion That Mulgund “Teaches” Recitations of Independent Claim 45**

Applicant respectfully points out that Applicant has reviewed those portions of the Mulgund reference identified by the USPTO, and so far as Applicant can discern, the Mulgund reference does not recite “a mote-addressed content index at the first mote having at least one of a sensing function, a control function, or routing/spatial information of said at least one mote-appropriate device at the second mote, said a mote-addressed content index agent at the first mote configured to be reported to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity” as recited in Applicant's Independent Claim 45.<sup>125</sup> Rather, the textual portions of Mulgund cited by the USPTO actually recite as follows:

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<sup>125</sup> Nor does Mulgund recite as the USPTO alleges, for that matter; Applicant again points out that, in derogation of the MPEP guidelines, the USPTO has not addressed the language of Applicant's Independent Claim 45.

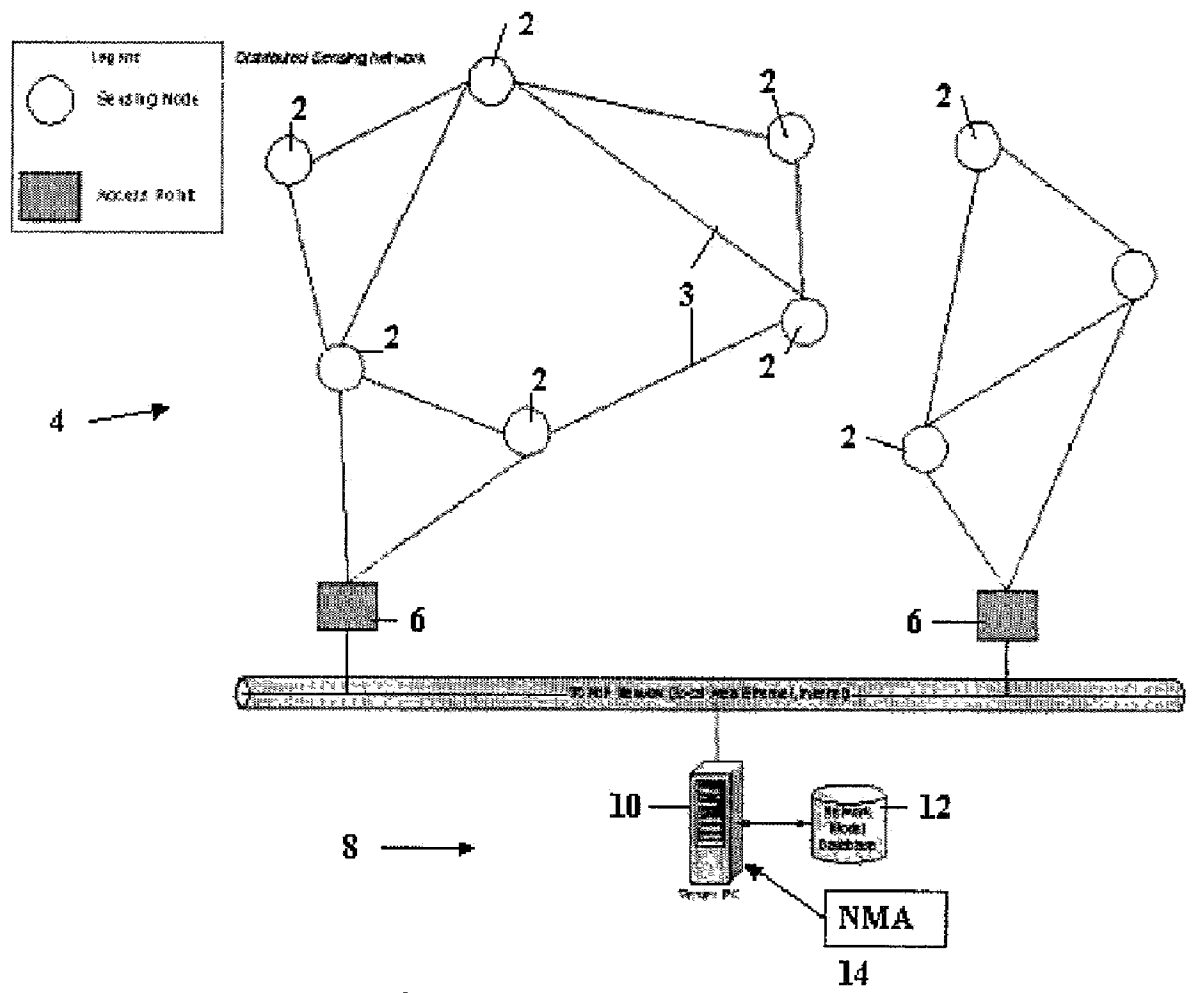


Figure 1

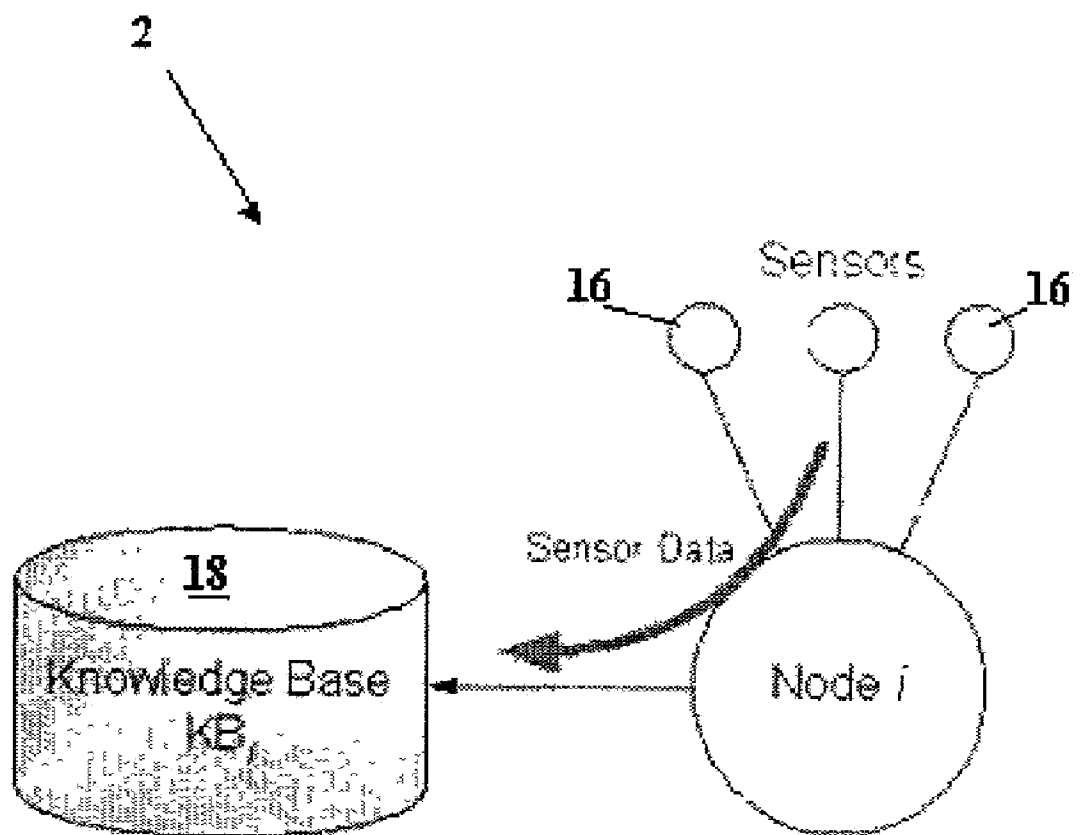


Figure 2





[0026] **FIG. 2** illustrates the nature of each of the sensing nodes **2**, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors **16** providing high-value information connected to it. The term sensor is used here in a general sense. A sensor **16** as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors **16** is stored locally in a well-defined knowledge base **18**, but the output can be accessed from outside the network **4** through some software application programming interface (API) and hardware implementation. Each of the sensing nodes **2** is additionally in communication with one or more other sensing nodes through connecting links **3**.

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

Mulgund at paragraphs 26, and 37, Figs. 1 - 3.

The USPTO is characterizing Mulgund to “teach” at least some of the text of Independent Claim 45, but does not support its characterization with objectively verifiable evidence. The USPTO has therefore not met its burden to establish a *prima facie* case of unpatentability for Independent Claim 45. What a reference “teaches” is a question of fact.<sup>126,127,128</sup> Conclusory statements that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective

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<sup>126</sup> See *Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) (“What a reference **teaches** is a question of fact... Therefore, we review the Board's **characterization of the disclosure** in the FPR Publication for **substantial evidence**.”) (emphasis added).

<sup>127</sup> *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing the PTO and holding when the PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”)

<sup>128</sup> Anticipation, as well as what a reference teaches, is a question of fact. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1323 (Fed. Cir. 2002).

evidence. See *In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009);<sup>129</sup> *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002);<sup>130</sup> *In re Kotzab*, 457 F.3d 1365, 1369 (Fed. Cir. 2000) (“Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. ... Broad conclusory statements standing alone are not “evidence.”).<sup>131</sup> Even if the

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<sup>129</sup> In *McNeil*, the Examiner had rejected claims reciting a tampon having “a generally cylindrical compressed, solid fibre core” and ribs “compressed less than the fiber core” in view of a Japanese patent application (“Sasaki”). McNeil appealed to the Board of Patent Appeals and Interferences, which “specifically found that ‘Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward.’” See *id.*, 2008-1546, slip op. 1, 3 (Fed. Cir. July 31, 2009). In light of this and its finding that of each rib of Sasaki being “compressed less than the fiber core,” the Board affirmed the rejections. Insofar that the Sasaki reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its statement that “Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward,” the Federal Circuit reversed the rejection for lack of “substantial evidentiary support,” stating as follows:

There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs “compressed less than the fiber core” or “a generally cylindrical compressed, solid fibre core.” ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions. ... Lastly, turning to the issue of spacing of the ribs, Figure 8 shows a space between the bottommost ribs, and there is arguably some space shown between other ribs. However, because it is neither clear that Sasaki discloses a core nor which portions of Sasaki's tampon the Board considered to be the ribs and which the Board considered to be the core, we cannot say that substantial evidence supports the Board's determination that Sasaki discloses ribs separated from each other “at the proximal end by an amount greater than” than at “the distal end.”

See *id.*, 2008-1546, slip op. 1, 10-11 (Fed. Cir. July 31, 2009).

<sup>130</sup> In *Lee*, the USPTO argued that, to the “common sense of a person of ordinary skill in the art,” it was obvious that one could combine a prior patent for an on-screen television menu with an on-screen picture-quality adjustment for a video game played on a television illustrated in the game’s handbook. The Federal Circuit ruled that obviousness must be based on “objective evidence of record.” Finding no specific published suggestion in the record, the Federal Circuit ruled the invention patentable. See *id.*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (describing the BPAI’s obligation to develop an evidentiary basis for its factual findings to allow for meaningful judicial review under the substantial evidence standard).

<sup>131</sup> In *Kotzab*, the Federal Circuit reversed the BPAI as follows:

The Examiner cites Evans for teaching that “one *system* constructed and operated according to the invention may be used to control a number of valves.” Evans application, p. 19, ll. 6-8 (emphasis added). In view of this disclosure only, the Examiner concluded that Evans teaches the use of one *sensor* to control a number of valves. This conclusion must necessarily rest on the unstated premise by the Examiner that “one system” is equal to “one sensor.”

But the Board’s decision, adopting the Examiner’s premise, lacks the necessary substantial evidence to support a rejection of Kotzab’s claims. Specifically, there is not substantial evidence to show that “one system” is the same thing as “one sensor.” The words “sensor” and “probe” are used throughout Evans to refer to the device that measures the mold temperature. ... Evans clearly never uses the term “system” as a substitute for the simple temperature measuring device it calls “sensor.” And, the Board made no reference to any evidence in the record that would equate “one system” with “one sensor.”

PTO personnel were to seek to support their characterizations with an expert witness affidavit, the law is that conclusory statements by an expert that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective documentary evidence.<sup>132</sup> Thus, when a party to a matter asserts that a reference “teaches” something beyond its bare recitations/direct disclosure, and that factual assertion is challenged by an opposite party, the law requires that the asserting party provide objective evidentiary support to “close the gap” between what the reference recites and the what the asserting party *alleges* the reference teaches; in the absence of such evidence, there should be no finding of fact in favor of the asserted teaching.<sup>133,134,135,136</sup> For each instance below in which

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As mentioned previously, more than a mere scintilla of evidence is necessary to support the Board's implicit conclusion that “one system” is equal to “one sensor.” Based on the entirety of Evans’ disclosure, we cannot say that there is such relevant evidence as a reasonable mind might accept as adequate to support the conclusion that “one system” means “one sensor.”

*See id.*, 457 F.3d 1365, 1370-71 (Fed. Cir. 2000) (underline added).

<sup>132</sup> *See Motorola, Inc. v. Interdigital Tech. Corp.*, 145 F.3d 1461, 1473 (Fed. Cir. 1997) (“The district court's holding misapprehends the rigors of anticipation. For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art... **Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there. An expert's conclusory testimony, unsupported by the documentary evidence, cannot supplant the requirement of anticipatory disclosure in the prior art reference itself.**”) (emphasis added); *see also Genzyme Corp. v. Atrium Med. Corp.*, 315 F. Supp. 2d 552, 563 (D. Del. 2004) (“For a patent to be anticipated, every element of a patent claim must appear in a single reference. **Other references and opinion may be used to reveal what the reference would have meant to those skilled in the art at the time of the invention.... For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. Presumed knowledge of one skilled in the art does not allow an expert to read into the reference elements that are not there.**”) (emphasis added)

<sup>133</sup> *See Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) . In *Rapoport*, the Federal Circuit affirmed the Board’s holding that a publication did not anticipate a claim, reasoning as follows (emphasis added):

Having construed the disputed term in the interference count and affirmed the Board's interpretation, we can properly address the merits of Rapoport's anticipation argument. The Board found that the disclosure of the FPR Publication was limited to treatment of anxiety in patients suffering from sleep apnea with buspirone, and did not address treatment of the underlying sleep apnea disorder. What a reference **teaches** is a question of fact.... There is no disclosure in the FPR Publication of tests in which buspirone is administered to patients suffering from sleep apnea with the intent to cure the underlying condition.... The Board also correctly found that the FPR Publication does not show administering buspirone in any specific amounts to patients suffering from sleep apnea.... We note that there is no mention in the FRP Publication of administering buspirone to a patient at bedtime.... Therefore, for all the reasons stated above, we find that the Board's conclusion that the FPR Publication does not disclose administration of buspirone to patients suffering from sleep apnea to treat sleep apnea is supported by substantial evidence.

<sup>134</sup> *See In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing PTO and holding, when PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”).

the USPTO has made an unsupported characterization, Applicant accordingly requests that the USPTO either (1) withdraw the corresponding claim rejection or (2) provide an affidavit setting forth objectively verifiable evidence sufficient to “close the gap” between the characterization and what the reference actually recites.

As can be seen from the foregoing, for example, the USPTO-identified portions of Mulgund do not recite the text of at least Clause [c] of Independent Claim 45: “a mote-addressed content index at the first mote having at least one of a sensing function, a control function, or routing/spatial information of said at least one mote-appropriate device at the second mote, said a mote-addressed content index agent at the first mote configured to be reported to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.”<sup>137</sup> Instead, Mulgund indicates “The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active.”

Applicant has shown by direct quotations that Independent Claim 45 and the Mulgund reference are very different on their faces. *See supra* at p. 102 (quotation of Claim 45); and at p. 107 *et seq.* (quotation of Mulgund). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the USPTO-cited art is very different from Claim 45, and Applicant has noted that the USPTO has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 45 either under the MPEP or under controlling legal standards. *See supra* at pp. 20–43.

Accordingly, insofar as that Mulgund does not recite the text of at least Clauses [a], [b] and [c] of Applicant’s Independent Claim 45, and insofar as that the USPTO has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how

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<sup>135</sup> *See In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009).

<sup>136</sup> *See In re Kotzab*, 457 F.3d 1365, 1369 (Fed. Cir. 2000).

<sup>137</sup> Neither do the USPTO-identified portions of Mulgund recite “circuitry for receiving, at [the] first node, provenance data including at least a handle relating to a first software program active on [the] second node,” as recited in Clause [a].

Mulgund could be modified/combined to teach at least Clauses [a], [b] and [c] of Independent Claim 45, Applicant respectfully points out that under the MPEP guidelines as set forth above, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 45 for at least these reasons. Thus, Applicant respectfully asks the USPTO to hold Independent Claim 45 allowable and to issue a Notice of Allowability of same.

With respect to the USPTO assertions regarding the teachings of Mulgund, Applicant demonstrated above that the express recitations of Mulgund are not as the USPTO alleges, and that the USPTO has provided no evidence—to support the USPTO assertions as to the factual conclusion as to what Mulgund “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, the USPTO has presented no evidence that Mulgund teaches as asserted by the USPTO. In addition, Applicant respectfully points out that even if the USPTO’s assertions regarding the teachings of Mulgund were supported, such would be of no moment in that the USPTO has yet to connect the alleged teaching of Mulgund to the actual express language of Applicant’s Independent Claim 45. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that the USPTO hold Independent Claim 45 allowable and issue a Notice of Allowability of same.

**(2) The USPTO Has Put Forth No Evidence Supporting Its Characterization/Assertion That Madden “Teaches” Recitations of Independent Claim 45**

As noted above, the USPTO has stated as follows:

As to claim 45, Mulgund shows:

- a first mote [node 2] (Fig. 1);
- at least one mote-appropriate device [sensor 16] at a second mote [another node 2] (Fig. 2 and par. [0026]); and
- a mote-addressed content index having at least a sensing function of said at least one mote-appropriate device at the second mote (Fig. 3 par. [0037]).

Mulgund does not show that said mote-addressed content index is at the first mote.

Madden shows:

- a mote-addressed content index at the first mote [parent mote] having at least a sensing function [group id] of said at least one mote-appropriate device at

the second mote [child mote) [creating in-network aggregate of collected information across all groups] (section 4.2 Grouping).

*It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having said mote-addressed content index being at the first mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).*

Office Action, pp. 17-18 (9 March 2010) (emphasis added).

Applicant has pointed out above that the USPTO has not engaged in the framework of the broadest reasonable interpretation consistent with the specification regarding Clauses [c], and accordingly has not yet addressed at least the “said a mote-addressed content index agent at the first mote configured to be reported to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity” recitations of Clause [c]. Accordingly, until the USPTO has supported its statement under the framework of the broadest reasonable interpretation consistent with the specification Applicant here returns to the express language of the claim and thus respectfully points out that Applicant has reviewed those portions of the Madden reference identified by the USPTO, and so far as Applicant can discern, the Madden reference does not recite “a mote-addressed content index at the first mote having at least one of a sensing function, a control function, or routing/spatial information of said at least one mote-appropriate device at the second mote, said a mote-addressed content index agent at the first mote configured to be reported to an aggregator of (i) a first-set content index from the first and second of motes administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity” as recited in Applicant's Independent Claim 45. Rather, the textual portions of Madden cited by the USPTO actually recite as follows:

#### 4.2 Grouping

*Grouping in TAG is functionally equivalent to the GROUP BY clause in SQL: each sensor reading is placed into exactly one group, and groups are partitioned according to an expression over one or more attributes. The basic grouping technique is to push the expression down with the query, ask nodes to*

*choose the group they belong to, and then, as answers flow back, update aggregate values in the appropriate groups.*

Partial state records are aggregated just as in the approach described above, except that those records are now tagged with a group id. When a node is a leaf, it applies the grouping expression to compute a group id. It then tags its partial state record with the group and forwards it on to its parent. When a node receives an aggregate from a child, it checks the group id. If the child is in the same group as the node, it combines the two values using the combining function. If it is in a different group, it stores the value of the child's group along with its own value for forwarding in the next epoch. If another child message arrives with a value in either group, the node updates the appropriate aggregate. During the next epoch, the node sends the value of all the groups about which it collected information during the previous epoch, combining information about multiple groups into a single message as long as message size permits.

Figure 2 shows an example of computing a query grouped by temperature that selects average light readings. Recall that queries may contain a HAVING clause, which constrains the set of groups in the final query result. This predicate can sometimes be passed into the network along with the grouping expression. The predicate is only sent if it can potentially be used to reduce the number of messages that must be sent: for example, if the predicate is of the form  $\text{MAX}(\text{attr}) > x$ , then information about groups with  $\text{MAX}(\text{attr}) < x$  need not be transmitted up the tree, and so the predicate is sent down into the network.

When a node detects that a group does not satisfy a HAVING clause, it can notify other nodes in the network of this information to suppress transmission and storage of values from that group. Note that HAVING clauses can be pushed down only for monotonic aggregates; nonmonotonic aggregates are not amenable to this technique.

However, not all HAVING predicates on monotonic aggregates can be pushed down; for example,  $\text{MAX}(\text{attr}) > x$  cannot be applied in the network because a node cannot know that, just because its local value of *attr* is less than, the *x*, MAX over the entire group is less than. Grouping introduces an additional problem: the number of groups can exceed available storage on any one (nonleaf) device. Our proposed solution is to evict one or more groups from local storage. Once an eviction victim is selected, it is forwarded to the node's parent, which may choose to hold on to the group or continue to forward it up the tree. Notice that a single node may evict several groups in a single epoch (or the same group multiple times, if a bad victim is selected). This is because, once group storage is full, if only one group is evicted at a time, a new eviction decision must be made every time a value representing an unknown or previously evicted group arrives.

Because groups can be evicted, the base station at the top of the network may be called upon to combine partial groups to form an accurate



aggregate value. Evicting partially computed groups is known as partial preaggregation, as described in [15].

Thus, we have shown how to partition sensor readings into a number of groups and properly compute aggregates over those groups, even when the amount of group information exceeds available storage in any one device. We will briefly mention experiments with grouping and group eviction policies in Section 5.2. First, we summarize some of the additional benefits of TAG.

Madden at section 4.2 (emphasis added).

Additionally, the USPTO is characterizing Madden to “teach” at least some of the text of Independent Claim 45, but does not support its characterization with objectively verifiable evidence, therefore the USPTO has not met its burden to establish a *prima facie* case of unpatentability for Independent Claim 45. What a reference “teaches” is a question of fact.<sup>138,139,140</sup> Conclusory statements that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective evidence. *See In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009);<sup>141</sup>

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<sup>138</sup> *See Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) (“What a reference **teaches** is a question of fact... Therefore, we review the Board's **characterization** of the **disclosure** in the FPR Publication for **substantial evidence**.”) (emphasis added).

<sup>139</sup> *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing the PTO and holding when the PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”)

<sup>140</sup> Anticipation, as well as what a reference teaches, is a question of fact. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1323 (Fed. Cir. 2002).

<sup>141</sup> In *McNeil*, the Examiner had rejected claims reciting a tampon having “a generally cylindrical compressed, solid fibre core” and ribs “compressed less than the fiber core” in view of a Japanese patent application (“Sasaki”). *McNeil* appealed to the Board of Patent Appeals and Interferences, which “specifically found that ‘Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward.’” *See id.*, 2008-1546, slip op. 1, 3 (Fed. Cir. July 31, 2009). In light of this and its finding that of each rib of Sasaki being “compressed less than the fiber core,” the Board affirmed the rejections. Insofar that the Sasaki reference did not directly disclose/recite as alleged by the Board, and since the Board did not supply evidence supporting its statement that “Sasaki reasonably appears to depict a tampon having a generally cylindrical absorbent portion with a generally cylindrical compressed solid fiber core from which longitudinal ribs extend radially outward,” the Federal Circuit reversed the rejection for lack of “substantial evidentiary support,” stating as follows:

There is not substantial evidence, indeed, no evidence, that Sasaki discloses ribs “compressed less than the fiber core” or “a generally cylindrical compressed, solid fibre core.” ... Just as the Sasaki figures do not indicate the relative compression of the different portions of the tampon, the Sasaki figures completely lack any indication of the relative coarseness of different portions. ... Lastly, turning to the issue of spacing of the ribs, Figure 8 shows a space between the bottommost ribs, and there is arguably some space shown between other ribs. However, because it is neither clear that Sasaki discloses a core nor which portions of Sasaki's tampon the Board considered to be the ribs and which the Board considered to be the core, we

*In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002);<sup>142</sup> *In re Kotzab*, 457 F.3d 1365, 1369 (Fed. Cir. 2000) (“Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. ... Broad conclusory statements standing alone are not “evidence.”).<sup>143</sup> Even if the PTO personnel were to seek to support their characterizations with an expert witness affidavit, the law is that conclusory statements by an expert that a reference “teaches” something beyond its bare recitations/direct disclosure do not constitute ANY evidence of such “teachings” unless they are supported by objective documentary evidence.<sup>144</sup> Thus, when a party to a matter

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cannot say that substantial evidence supports the Board's determination that Sasaki discloses ribs separated from each other “at the proximal end by an amount greater than” than at “the distal end.”

*See id.*, 2008-1546, slip op. 1, 10-11 (Fed. Cir. July 31, 2009).

<sup>142</sup> In *Lee*, the USPTO argued that, to the “common sense of a person of ordinary skill in the art,” it was obvious that one could combine a prior patent for an on-screen television menu with an on-screen picture-quality adjustment for a video game played on a television illustrated in the game’s handbook. The Federal Circuit ruled that obviousness must be based on “objective evidence of record.” Finding no specific published suggestion in the record, the Federal Circuit ruled the invention patentable. *See id.*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (describing the BPAI’s obligation to develop an evidentiary basis for its factual findings to allow for meaningful judicial review under the substantial evidence standard).

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But the Board’s decision, adopting the Examiner’s premise, lacks the necessary substantial evidence to support a rejection of Kotzab’s claims. Specifically, there is not substantial evidence to show that “one system” is the same thing as “one sensor.” The words “sensor” and “probe” are used throughout Evans to refer to the device that measures the mold temperature. ... Evans clearly never uses the term “system” as a substitute for the simple temperature measuring device it calls “sensor.” And, the Board made no reference to any evidence in the record that would equate “one system” with “one sensor.”

As mentioned previously, more than a mere scintilla of evidence is necessary to support the Board’s implicit conclusion that “one system” is equal to “one sensor.” Based on the entirety of Evans’ disclosure, we cannot say that there is such relevant evidence as a reasonable mind might accept as adequate to support the conclusion that “one system” means “one sensor.”

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<sup>144</sup> *See Motorola, Inc. v. Interdigital Tech. Corp.*, 145 F.3d 1461, 1473 (Fed. Cir. 1997) (“The district court’s holding misapprehends the rigors of anticipation. For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art... **Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there. An expert’s conclusory testimony, unsupported by the documentary evidence, cannot supplant the requirement of anticipatory disclosure in the prior art reference itself.**”) (emphasis added); *see also Genzyme*

asserts that a reference “teaches” something beyond its bare recitations/direct disclosure, and that factual assertion is challenged by an opposite party, the law requires that the asserting party provide objective evidentiary support to “close the gap” between what the reference recites and the what the asserting party *alleges* the reference teaches; in the absence of such evidence, there should be no finding of fact in favor of the asserted teaching.<sup>145,146,147,148</sup> For each instance below in which the USPTO has made an unsupported characterization, Applicant accordingly requests that the USPTO either (1) withdraw the corresponding claim rejection or (2) provide an affidavit setting forth objectively verifiable evidence sufficient to “close the gap” between the characterization and what the reference actually recites.

As can be seen from the foregoing, for example, the USPTO-identified portions of Madden do *not recite* the text of at least Clause [c] of Independent Claim 45: “a mote-addressed content index at the first mote having at least one of a sensing function, a control function, or routing/spatial information of said at least one mote-appropriate device at the second mote, said a mote-addressed content index agent at the first mote configured to be reported to an aggregator of (i) a first-set content index from the first and second of motes administered by the first

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*Corp. v. Atrium Med. Corp.*, 315 F. Supp. 2d 552, 563 (D. Del. 2004) (“For a patent to be anticipated, every element of a patent claim must appear in a single reference. **Other references and opinion may be used to reveal what the reference would have meant to those skilled in the art at the time of the invention.... For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. Presumed knowledge of one skilled in the art does not allow an expert to read into the reference elements that are not there.**”) (emphasis added)

<sup>145</sup> See *Rapoport v. Dement*, 254 F.3d 1053, 1060 (Fed. Cir. 2001) . In *Rapoport*, the Federal Circuit affirmed the Board’s holding that a publication did not anticipate a claim, reasoning as follows (emphasis added):

Having construed the disputed term in the interference count and affirmed the Board’s interpretation, we can properly address the merits of Rapoport’s anticipation argument. The Board found that the disclosure of the FPR Publication was limited to treatment of anxiety in patients suffering from sleep apnea with buspirone, and did not address treatment of the underlying sleep apnea disorder. What a reference teaches is a question of fact,.... There is no disclosure in the FPR Publication of tests in which buspirone is administered to patients suffering from sleep apnea with the intent to cure the underlying condition.... The Board also correctly found that the FPR Publication does not show administering buspirone in any specific amounts to patients suffering from sleep apnea.... We note that there is no mention in the FRP Publication of administering buspirone to a patient at bedtime.... Therefore, for all the reasons stated above, we find that the Board’s conclusion that the FPR Publication does not disclose administration of buspirone to patients suffering from sleep apnea to treat sleep apnea is supported by substantial evidence.

<sup>146</sup> See *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993) (reversing PTO and holding, when PTO presented no evidence to cure *prima facie* differences between patent claim and Examiner assertions regarding what the allegedly invalidating prior art “taught”).

<sup>147</sup> See *In re McNeil-PPC*, 2008-1546 (Fed. Cir. July 31, 2009).

<sup>148</sup> See *In re Kotzab*, 457 F.3d 1365, 1369 (Fed. Cir. 2000).

network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of nodes administered by a second network administrator owned or controlled by a second business entity” Instead, Madden recites “Grouping in TAG is functionally equivalent to the GROUP BY clause in SQL: each sensor reading is placed into exactly one group, and groups are partitioned according to an expression over one or more attributes. The basic grouping technique is to push the expression down with the query, ask nodes to choose the group they belong to, and then, as answers flow back, update aggregate values in the appropriate groups.” (Madden Section 4.2 Grouping).” Consequently, on its face, Madden does not show the text of at least Clause [c] of Independent Claim 45.

Applicant has shown by direct quotations that Independent Claim 45 and the Madden reference are very different on their faces. *See supra* at p. 102 (quotation of Claim 45); and at p. 115 *et seq.* (quotation of Madden). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the USPTO-cited art is very different from Claim 45, and Applicant has noted that the USPTO has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 45 either under the MPEP or under controlling legal standards. *See supra* at pp. 20–43.

Accordingly, insofar as that Madden does not recite the text of at least Clauses [a], [b] and [c] of Applicant’s Independent Claim 45, and insofar as that the USPTO has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Madden could be modified/combined to teach at least Clauses [a], [b] and [c] of Independent Claim 45, Applicant respectfully points out that under the MPEP guidelines as set forth above, the USPTO-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 45 for at least these reasons. Thus, Applicant respectfully asks the USPTO to hold Independent Claim 45 allowable and to issue a Notice of Allowability of same.

With respect to the USPTO assertions regarding the teachings of Madden, Applicant demonstrated above that the express recitations of Madden are not as the USPTO alleges, and that the USPTO has provided no evidence—let alone the preponderance of the evidence required—to support the USPTO assertions as to the factual conclusion as to what Madden

“teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, the USPTO has presented no evidence that Madden teaches as asserted by the USPTO. In addition, Applicant respectfully points out that even if the USPTO’s assertions regarding the teachings of Madden were supported, such would be of no moment in that the USPTO has yet to connect the alleged teaching of Madden to the actual express language of Applicant’s Independent Claim 45. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that the USPTO hold Independent Claim 45 allowable and issue a Notice of Allowability of same.

**c) The USPTO-Suggested Modifications/Combinations to Meet the Recitations of Independent Claim 45 Are a “Mere Conclusory Statement” Without Evidentiary Support/Change the Principle of Operation of Components of Cited References/Render Such Components Unfit for Intended Purpose; No Teaching to Combine/Modify Components as a Matter of Law.**

In addition and/or in the alternative to the foregoing, Applicant additionally points out that, not only has the USPTO yet to adduce any objectively verifiable evidence sufficient to support the USPTO assertions regarding alleged teaching to modify/combine Mulgund and/or Madden to meet the recitations of amended Independent Claim 1, there can be no such teaching as a matter of law. Specifically, shown following is that (1) any USPTO assertion regarding a teaching to modify/combine the technologies of Mulgund with the technologies of Madden would appear to be based on conclusory statement(s) without evidentiary support.

**IV. ARGUMENT: 35 U.S.C. §112 ISSUES HAVE BEEN ADDRESSED; NOTICE OF ALLOWANCE IS RESPECTFULLY REQUESTED**

Claims 2, 21-40, and 47-50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claims 2, 12, 13, 21-40, 32, 33, 43, 46, and 47 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. *See* Office Action, p. 8 (9 March 2010). Applicant traverses these rejections for at least the reasons set forth below.

**A. Applicant Has Changed Claims 2, 12, 13, 21-40, 32, 33, 46, and 47 Rendering the Present Rejections Under 35 U.S.C. §112 Moot**

The USPTO has stated as follows:

Claims 2, 21-40, and 47-50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

As to claim 2, the limitation of "said determining at least one of a sensing function or a control function at a first mote of a second mote further comprises accessing at least one device entity registry of the second mote, wherein the device entity registry includes a network address of the second mote" fails to be described in the specification. In particular, it is nowhere described that determining at the first mote comprises accessing a device registry of the second mote. What specification does describe is determining includes accessing a device registry of a mote by the index creation agent residing within the mote. See last paragraph at page 9.

As to claim 21, limitation of "an index creation agent including means for creating" fails to be described in the specification such that claimed structure can be ascertained. In particular, as discussed fully in the last Office action, for every "means plus function" limitation, the current specification must be reviewed to assist in identifying the corresponding structure that performs the claimed function. The specification shows that determining at least one of a sensing function or a control function at a mote and creating one or more mote-addressed content indexes in response to said determining is performed by an index creation agent (202) (bottom of page 9, page 10). Therefore, means for determining are an index creation agent (202), and means for creating are also an index creation agent (202). Thus, according to currently amended claim 21, an index creation agent includes an index creation agent for creating one or more mote-addressed content indexes. Such structure was nowhere mentioned in the disclosure. Applicants are required to either provide a proper antecedent basis in the specification for the claimed subject matter, identify alternative structure corresponding to the claimed function of "creating one or more mote-addressed content indexes", or amend the claim to comply with the written description requirement.

Claim 21 further recites in part "wherein at least one of the means for determining or the means for creating includes hardware for at least one of determining or creating".

The cited page 40 of the specification provides a very generic description of "electrical circuitry" and how "those skilled in the art will recognize that the various aspects described herein which can be implemented, individually and/or collectively, by a wide range of hardware, software, firmware, or any combination thereof can be viewed as being composed of various types of "electrical circuitry"". Such broad statement, applicable to virtually any computer-related patent application, provided at pages 39-43 of the specification, such section describing "the state of the art" in the computer-related field, fails to reasonably convey to one of ordinary skill in the art that the inventors, at the time the application was filed, had possession of the claimed invention directed to, in part, hardware for at least one of determining at least one of a sensing function or a control function of a second mote at a first mote or creating one or more moteaddressed content indexes of the second mote at the first mote in response to said determining. It is nowhere described or even mentioned in the 43-page specification that claimed " hardware ~ is specifically for at least one of determining or creating, as claimed.

As to claims 47 and 48, the limitation of "updating the mote-addressed content index to indicate availability of information from a sensing device information" (emphasis added) was not described in the specification. Applicants are required to either provide a proper antecedent basis in the specification for the claimed subject matter or amend the claims to comply with the written description requirement.

See Office Action pages 5-8

The USPTO has also stated as follows:

Claims 2, 12, 13, 21-40, 32, 33, 43, 46, and 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 2, it is unclear which one of "at least one device entity" "the device entity" refers to.

As to claims 12 and 13 (and corresponding claims 32 and 33), the step of establishing an index-creating agent at the mote (as part of said creating step which occurs in response to said step of determining, as in claim 1) is ambiguous because the order of steps is unclear to the extent that it is inconsistent with the order provided in the specification. In particular, independent claim 1 (and independent claim 21) states that step of creating is performed after (in response to) step of determining. The body of the claim further limits the step of creating by introducing additional steps (establishing, determining, and associating). However, the step of establishing an index-creating agent at the mote in response to the step of determining is inconsistent with the specification. The specification shows at the bottom of page 9 and the top of page 10 that "... index creation agent communicates with the device entities to find out what sensing functions are present and/or available at their various respectively associated devices ... " Thus, the specification identifies an index-creating agent as performing the step of determining (recited in claims 1 and 21). In light of the specification, one of ordinary skill in the art would reasonably conclude that an index-creating agent is established prior to the step of determining in order for it to perform the step of

determining. Therefore, the step of establishing an index-creating agent at the mote subsequently (in response to) step of determining, as currently claimed, is inconsistent with the specification and is, therefore, ambiguous.

Claim 13 contains analogous inconsistency wherein the step of migrating to the mote is claimed to be performed in response to the step of determining (recited in claims 1 and 21).

If applicants assert that the index creation agent does not perform the step of determining (of claims 1 and 21), as identified by examiner, the appropriate citation from the specification must be provided in the next response clearly indicating which component of the invention performs the recited step of determining.

As to claim 21, limitations: "means for determining" and "means for creating" are interpreted to invoke 35 USC 112, sixth paragraph.

The current specification must be reviewed to assist in identifying the corresponding structure that performs the claimed function. The specification shows that determining at least one of a sensing function or a control function at a mote and creating one or more mote-addressed content indexes in response to said determining is performed by an index creation agent (202) (bottom of page 9, page 10). Therefore, means for determining are interpreted to be an index creation agent (202), and means for creating are also interpreted to be an index creation agent (202).

Since the index creation agent is a computer program, as evidenced by specification at page 8 last paragraph, it is unclear how can a computer program include hardware, as currently claimed. In their arguments, applicants failed to either rebut presumption that 35 U.S.C. 112, sixth paragraph applies or explain why the particular structure identified by examiner is not the correct structure identified by "means" in the claimed "mean-plus-function" language. Thus, the rejection is deemed proper.

As to claim 21, it is further unclear as to how an index creation agent can include an index creation agent, that is, itself.

Claims 22-40 are rejected for the same reasons as these claims depend from rejected claim 21.

As to claims 32 and 33, it is unclear how can an index creation agent comprise means for migrating and installing/establishing itself at the mote.

As to claim 43, an index creation agent is interpreted as a software program since it is the only implementation disclosed in the specification at last paragraph of page 8. The index creation agent being a software program, it is unclear how a software program may comprise a processor, which is clearly a hardware component.

As to claim 46, it is unclear as to what is the relation between "a sensing device" of claim 46 and a first (second) mote of claim 1.

As to claim 47, it is unclear how can the availability of information from a sensing device information be indicated.

Office Action, pp. 8-11 (9 March 2010).

Claims 2, 12, 13, 21, 32, 33, 46, and 47 have been amended as follows:



46. (CURRENTLY AMENDED) The method of Claim 1, wherein said determining at least one of a sensing function or a control function at a first mote of a second mote further comprises:

accessing at least one device entity registry of the second mote by an index creation agent resident in the second mote, wherein the at least one device entity registry includes a network address of the second mote.

47. (CURRENTLY AMENDED) The method of Claim 1, wherein said creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining further comprises:

establishing an index-creating agent at the first mote;  
determining a mote-network address of the second mote; and  
associating at the first mote at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index with the mote-network address of the second mote.

48. (PREVIOUSLY PRESENTED) The method of Claim 1, wherein said creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining further comprises:

migrating an index creation agent to the first mote;  
installing an index creation agent at the first mote; and  
querying at least one device entity at the second mote with the index creation agent.

49. (CURRENTLY AMENDED) A system comprising:

means for determining at least one of a sensing function or a control function of a second mote at a first mote, the first mote and the second mote administered by a first network administrator owned or controlled by a first business entity;

means for creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining; and

means for reporting with hardware at least a part of the created mote-addressed content index created by the index creation agent to an aggregator of (i) a first-set content index from the first mote and the second mote administered by the first network administrator owned or controlled by the first business entity and (ii) a second-set content index from a second set of motes administered by a second network administrator owned or controlled by a second business entity.

50. (CURRENTLY AMENDED) The system of Claim 21, wherein said means for creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining further comprises:

means for establishing an index-creating agent at the first mote;  
means for determining a mote-network address of the second mote; and

means for associating at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of the second mote with the mote-network address of the first mote.

51. (CURRENTLY AMENDED) The system of Claim 21, wherein said means for creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining further comprises:  
means for migrating the index creation agent to the first mote;  
means for installing the index creation agent at the first mote; and  
means for querying at least one device entity at the second mote .

46. (Currently Amended) The method of Claim 1, wherein said determining at least one of a sensing function or a control function at a first mote of a second mote further comprises:  
determining availability of information from a sensing device coupled with the second mote, determining a format of information obtained from the sensing device, determining a format of commands to query the sensing device, or determining an output format of information from the queried sensing device.

47. (CURRENTLY AMENDED) The method of Claim 46, wherein creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining comprises:  
constructing the mote-addressed content index to indicate the availability of information from a sensing device, the format of information obtained from the device, the format of commands to query the device, or the output format of information of the queried device.

48. (Currently Amended) The method of Claim 4, wherein creating one or more mote-addressed content indexes of the second mote at the first mote in response to said determining comprises:  
constructing the mote-addressed content index to indicate the availability of the light device entity, the electrical device entity, the pressure device entity, the temperature device entity, the volume device entity, the inertial device entity, or the antenna entity.

Applicant traverses this rejection.” Nevertheless, in the interest of expediting allowance, Dependent Claims 2, 12, 13, 21-40, 32, 33, 46, 47 and 48 have been amended and claim 43 has been canceled such that 35 U.S.C. §112 is not presently at issue.<sup>149</sup> Claims 22 – 40 depend on claim 21. Withdrawal of this rejection and allowance of Claims 2, 12, 13, 21-40, 32, 33, 46, 47 and 48 is accordingly requested.

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<sup>149</sup> Applicant reserves all rights to pursue other claim forms, including the as-filed claims, in the present application or in continuing applications claiming priority thereto.

## V. CONCLUSION

Applicant may have during the course of prosecution cancelled and/or amended one or more claims. Applicant notes that any such cancellations and/or amendments will have transpired (i) prior to issuance and (ii) in the context of the rules that govern claim interpretation during prosecution before the United States Patent and Trademark Office (PTO). Applicant notes that the rules that govern claim interpretation during prosecution form a radically different context than the rules that govern claim interpretation subsequent to a patent issuing. Accordingly, Applicant respectfully submits that any cancellations and/or amendments during the course of prosecution should be held to be tangential to and/or unrelated to patentability in the event that such cancellations and/or amendments are viewed in a post-issuance context under post-issuance claim interpretation rules.

Insofar as that the Applicant may have during the course of prosecution cancelled/amended claims sufficient to obtain a Notice of Allowability of all claims pending, Applicant may not have during the course of prosecution explicitly addressed all rejections and/or statements in Office Actions. The fact that rejections and/or statements may not be explicitly addressed during the course of prosecution should NOT be taken as an admission of any sort, and Applicant hereby reserves any and all rights to contest such rejections and/or statements at a later time. Specifically, no waiver (legal, factual, or otherwise), implicit or explicit, is hereby intended (e.g., with respect to any facts of which the USPTO took Official Notice, and/or for which the USPTO has supplied no objective showing, Applicant hereby contests those facts and requests express documentary proof of such facts at such time at which such facts may become relevant). For example, although not expressly set forth during the course of prosecution, Applicant continues to assert all points of (e.g. caused by, resulting from, responsive to, etc.) any previous Office Action, and no waiver (legal, factual, or otherwise), implicit or explicit, is hereby intended. Specifically, insofar as that Applicant does not consider the cancelled/unamended claims to be unpatentable, Applicant hereby gives notice that it may intend to file and/or has filed a continuing application in order prosecute such cancelled/unamended claims.

With respect to any cancelled claims, such cancelled claims were and continue to be a part of the original and/or present patent application(s). Applicant hereby reserves all rights to present any cancelled claim or claims for examination at a later time in this or another

application. Applicant hereby gives public notice that any cancelled claims are still to be considered as present in all related patent application(s) (e.g. the original and/or present patent application) for all appropriate purposes (e.g., written description and/or enablement). Applicant does NOT intend to dedicate the subject matter of any cancelled claims to the public.

Should this case go to appeal, Applicant reserves the right to submit argument, rebuttal evidence, or legal authority in the instance the Board of Patent Appeals and Interferences finds that the USPTO has met its burden in establishing a *prima facie* case of unpatentability of the various appealed claims. Applicant further reserves the right to submit argument, rebuttal evidence, or legal authority if new claim interpretations or definitional citations are raised on appeal. The fact that argument, rebuttal evidence, or legal authority may not have been explicitly discussed during the course of prosecution should NOT be taken as an admission or waiver of any sort, and Applicant hereby reserves any and all rights to discuss (e.g. make explicit, produce, or explain) such rebuttal evidence at a later time.

The Examiner is invited to contact Steven Stewart at (206) 321-9072 or Dale R. Cook at (425) 467-2260 with any issues that may advance prosecution of the application on the merits.

Respectfully submitted,

8/6/2010

Date

/Steven C. Stewart/

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